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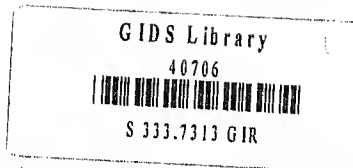
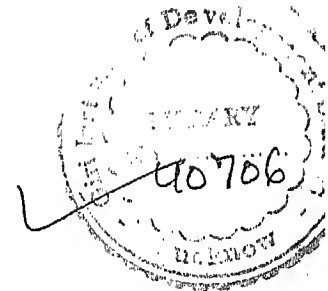
National Seminar
on
Problems & Management of Rural Urban Fringe

17-18 Nov. 2009

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Seminar Papers

1. M.S. Khan & Gaurav Bisaria – Research Paper on Social Impacts of Rural Urban Fringe.
2. Rupendra Kaur – Post Reform Restructuring of Employment in Urban Peripheries: A Case Study of National Capital Region of India.
3. S.B. Singh – Rural Urban Fringe: Problems and Management.
4. S. Shukla, Rohit Agrawal – Application and Importance of Sarika Shukla & R.S. Kushwaha- Advance and Remote Sensing and GIS Techniques in Identifying the Encroachment of
5. Kamal Asif & H Rahman – Quest for Developing Agro-Processing Centres in Rural-Urban Fringe Areas.
6. Mushir Ali – Rural-Urban Fringe & Socio-Economic Structural Analysis of Vegetable Traders.
7. S.K. Datta & K. Sarkar – Tradeoff between Development & Agriculture Related Land Use at Urban Fringe.
8. Shahab Fazal – Modelling and Sustainable Urban Expansion.
9. Ali Mohammad & Nawaz Malik – Urban Encroachment on Agricultural Lands.
10. Rana P.B. Singh – Urban Sprawl and Changing Periurban Scene Around Varanasi City.
11. Sunit Singh & Rewa Singh – Who Owns the Land.
12. M. Lal Adhikary & S. Chaudhary – Agricultural Land Acquisition Special Economic Zones & its Consequences.
13. Ravindra Kumar – Rural Urban Fringe Land Use Transition Threatens Potential.
14. Sana – Educational Facilities in Fringe Areas of Azamgarh Distt.
15. SSA Jafri & Milita Haldar – Rapid Urban sprawl in Large Cities & its Swift Encroachment on---
16. P.P. Singh & R.P.B. Singh – Changing Pattern of Urban Sprawl in Harahua Block Varanasi.
17. Ravi S. Singh – Emergence of Peri-Urban Interface and Future Research Challanges.
18. Pratima Ghosh – Sustainable Development and Urban Sprawl in Kanpur Urban.
19. B.K. Bajpai – Rural Urban Fringe in U.P.
20. Archana Gupta – Glimpses of the Rural Urban Fringe of Lucknow Metropolis
21. Sister Mariaon Mathew – Socio-Spatial Impact of Rural Urban Fringe.
22. Nadia Anis – Health Facilities in Municipal Wards Located in Fringe Area of Aligarh City.
23. Abdul Munir, Deepika Varshney – Spatial Behaviour of Daily Arshi Azmi – Commuters of Aligarh City.
24. NMP Verma & Vinit Kumar – Industrial Development through SEZs and Acquisition of Land for it.
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26. R.K. Chaturvedi – Changing Scenario of Peri-Urban Landscape
Rana P.B. Singh – Arround Ballia.

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RESEARCH PAPER ON SOCIAL IMPACTS OF RURAL URBAN FRINGE

M.S. Khan & Gaurav Bisaria
Faculty of Business Management
Integral University, Lucknow

Paper Presented at the
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RESEARCH PAPER

on

SOCIAL IMPACTS OF RURAL URBAN FRINGE

By-

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Dr. GAURAV BISARIA, Assistant Professor, Faculty of Business Management, INTEGRAL UNIVERSITY, Lucknow.

INTRODUCTION

The rural-urban fringe is also known as the **outskirts** or **urban hinterland**. It is the area between an urban area and a rural area. It is where there is a mixture of rural land uses and urban land uses. The urban population in large cities is growing naturally and rapidly and migration of peoples from rural areas to urban areas has shown settlement at the surroundings of the city boundaries. The **United Nation's Population Fund (UNFPA)** released their "State of the World Population 2007" report in June 2007 which mentioned the fact that humanity is nearing the date when for the first time more humans will be living in cities than in rural areas. The vast majority of these new urban dwellers will live in developing countries, and they will be poor. This will present major challenges for the nations least prepared to meet the inevitable strains of urban growth. Land factor in urban growth and development has received attention for the urban planners. This leads to drastic changes in the land use pattern of urban area. The origin of parks and commercial complexes at city borders also bring changes in the land use pattern of rural areas.

Most often, the cities and towns which are close to the agricultural land develop at a much faster pace and therefore, the physical expansion of urban areas invariably makes inroads on the country's agricultural produce. With increasing population and needs for modern living, housing space, industrial space and so on, the demand for urban land is bound to increase and bring out transformation of the social, demographic and cultural structure of the fringe villages.

THEME

URBANISM

Urbanism is a way of life. It reflects an organization of society in terms of a complex division of labour, high levels of technology, high mobility, interdependence of its members in fulfilling economic functions and impersonality in social relations.

Louis Wirth has given following four characteristics of urbanism:

- **Transiency:** An urban inhabitant's relation with others last only for a short time; he tends to forget his old acquaintances and develop relations with new people. Since he is not much attached to his neighbours members of the social groups, he does not mind leaving them.
- **Superficiality:** An urban person has the limited number of persons with whom he interacts and his relations with them are impersonal and formal. People meet each other in highly segmental roles. They are dependent on more people for the satisfaction of their life needs.
- **Anonymity:** Urbanities do not know each other intimately. Personal mutual acquaintance between the inhabitants which ordinarily is found in a neighborhood is lacking.
- **Individualism:** People give more importance to their own vested interests.

CITY

Cities become possible when an agricultural surplus develops together with improved means of transportation and tend to be located at breaks in transportation. The most significant current developments in city structure are the metropolitan area. The city pulls people from various corners towards its nucleus. The rural people faced with various economic problems are attracted by the city and start moving towards the cities. The city provides ample opportunities for personal advancement. It is the centre of brisk economic, commercial, artistic, literary, political, educational, technological, scientific and other activities. Cities are not only the controlling centers of their societies but also the source of innovation and change. They act as the source of new ideas for production, the pace -setters for consumption, guardians of culture and conservers of order in society. Consensus and continuity in a society are maintained from the city centres. Urban culture has become the legitimation for control. The basic assumption was that a given rural area supports an urban centre which in turn serves the surrounding countryside.

RESEARCH METHODOLOGY

This study basically focuses on the process of urban expansion in Lucknow with special reference to the process and patterns of land acquisition for urban expansion.

Objectives : A) To identify the rural-urban fringe of Lucknow and study the process of urban expansion; B) To critically evaluate Lucknow's large scale land acquisition, development C) To examine the pattern of investment and expenditure of compensation money received after acquisition of land in the households of sample villages; D) To observe the changes in occupational structure of the households which are uprooted as a consequence of acquisition of the agricultural land and E) To study the impact of planned development on urban and rural land prices in Lucknow.

Study Area: Lucknow, the capital of U.P.

Major Findings: A) Spatial distribution of land acquired has been unequal for different settlements. B) Distribution of compensation of land acquired has also been unequal both over time and space. Market value of land per *bigha* reveals that lands were rated very low. C) Compensation money was used for consumption purposes, in most cases, for house construction, car purchase, marriage etc. Households having educated members invested in productive activities. Some of them purchased agricultural land and a significant amount of proceeds was also saved by landowners. Households in the higher categories of compensation invested in business, and real estate. D) Dairying as an economic activity declined due to land shortage. Unemployment resulting from dismemberment of agriculture, tough competition in secondary and tertiary sectors, wastage of compensation money on unproductive items, failure in new ventures etc. made rent an important source of regular income for the farmers. E) There has been drastic increase in urban and rural land prices because of construction of roads, attachment of street lights and proper water and electricity supply.

FEATURES OF URBAN SOCIETY

- The urban society is heterogeneous known for its diversity and complexity.
- It is dominated by secondary relations.
- Formal means of social control such as law, legislation, police, and court are needed in addition to the informal means for regulating the behavior of the people.
- The urban society is mobile and open. It provides more chances for social mobility. The status is achieved than ascribed.
- Occupations are more specialized. There is widespread division of labor and specialization opportunities for pursuing occupations are numerous.
- Family is said to be unstable. More than the family individual is given importance. Joint families are comparatively less in number.

- People are more class-conscious and progressive. They welcome changes. They are exposed to the modern developments in the fields of science and technology.
- Urban community is a complex multi-group society.
- The urban community replaced consensus by dis-sensus. The social organization is atomistic and ill-defined. It is characterized by disorganization, mental illness and anomie.
- Mass education is widespread in the city increasing democratization of the organizations and institutions demand formal education.

ADVANTAGES & DIS-ADVANTAGES OF URBANIZATION

Rapid increase in urban population as a proportion of total population is resulting in rapid urbanization of the world. By the end of 2015, a majority of the world's population will be living in the cities. This paradigm shift in the dynamics of human population is attracting attention of sociologists, demographers, scientists, and politicians. Urbanization brings with it a unique set of advantages and disadvantages.

ADVANTAGES

EDUCATION

Children from low-income families know about 3,000 words by age 6, while those from high-income backgrounds know 20,000. Children from privileged families hear millions more words by age 3 than those from less affluent backgrounds. As a general rule, farm employers would prefer not to have young children around the field.

In our rapidly changing world, literacy should be seen as an important evolutionary variable in every society. For the further a society progresses, the more it needs to adjust and adapt to new demands and pressures, so that literacy is lifelong necessity for all. Literacy, in the broad sense, is the foundation for life skills, ranging from basic oral and written communication to the ability to solve scientific and social problems. Education is a powerful motive for moving to the city. Rural education has often been neglected in favor of urban but it is also an essential urban function. Cities have always provided intellectual stimulus and educational leadership. In developing countries there is often substantially higher, proportion of educated people in the cities. Urban

environments often encourage improvement in women's status. It is predicted that by 2015, 22 of the 27 mega cities would be in developing countries.

CITIES OFFER THE LURE OF BETTER EMPLOYMENT

With the liberalization in full swing and its impact on all sections of economy we are witness to the inexorable urbanization of the country. The unemployed people and the seasonal workers who have no work all though the years move to big cities in search of employment. It is because cities provide economic opportunities with the available infrastructure. Large manufacturing units are situated in or close to the cities considering the available infrastructure like power, roads, rail and ports. In every state there are about half a dozen big towns with two or three big cities. The industries cluster around these places with larger units nearer to metros. The jobs are not seasonal as in farming but all through the year. Ancillary industries grow and service industries also thrive side by side. Both skilled and unskilled labours find ready jobs. There is wide area and large no. of industries and companies running successfully which require good employees. The requirement can be for the managerial post i.e. a person who is having management knowledge and can also be for skilled workers as well as labourers. There is widespread division of labor and specialization opportunities for pursuing occupations which are numerous. If this trend is not reversed quickly the rural income would become a small fraction of urban income. The urban population will grow beyond manageable levels with most living in slums.

HEALTH CARE

In rural areas the women are giving births to children in open fields and in trucks and DHAI MA is there for operations which is not very good in hygienic while in urban areas everything is done with utmost care and proper checks-ups are done with the guidance. Environmental conditions of rural areas influence certain health risks. The environment exposes children to a high risk of diarrheal diseases and parasitic diseases. The people of rural areas suffer from malaria which has become an urgent problem in villages. Data that are available indicate a range of rural health hazards and associated health risks are substandard housing, insufficient or contaminated drinking water, inadequate sanitation and solid waste disposal services, increased motor vehicle traffic, stress associated with poverty and unemployment, among others. Now nearly half the world's population lives in urban settlements.

TRANSPORTATION

India is a large country with a large population. For the economy to prosper, people and goods have to be efficiently moved fast over large distances. India is approximately ten times as densely populated as the US. It therefore cannot afford the solution that works for the US for transporting people, namely, air travel. **What India needs is a land-based system and more specifically a rail-based transportation system for both goods and people.** The technology exists for super-efficient, super-fast rail systems. India has to seriously invest in that and replace the century-old current railway system. Further, within cities, India needs to have efficient public transit system and not rely on automobiles. These are not available with the rural areas. The rural areas are not able to match its pace with the development of TRANSPORT SYSTEM in the urban areas. Above all Time is not the hindrance for the availability of public transport system in urban areas as compared to rural areas.

BETTER QUALITY OF LIFE

Urbanization can have a positive impact on development issues such as poverty, inequality and environmental degradation, so long as the appropriate policies are in place to manage the problems and challenges. It also offers opportunities for economic growth. The South African city of Cape Town has been rapidly urbanizing for the past three or four decades. The modern cities succeed to the extent that they link their populations with the nation's economy and the nation's economy with the global economy. The city tries to get their right to improve life for the very poor and to enable all to have opportunities in the city. There are compact, well-designed and well-managed cities can which can generate a "fantastic" quality of life at a relatively low level of greenhouse gas emissions.

DIS ADVANTAGES

HEALTH RISK

Health risks that urbanization has brought to developing countries are urban dwellers, particularly children, women, and elderly people, are vulnerable to health threats associated with overcrowding, pollution, and a host of familiar urban problems that include mental and physical diseases, homelessness, drug abuse, and sexually transmitted diseases as well as violence and social alienation. The evidence available indicates that poor populations have higher rates of maternal mortality and infant mortality and morbidity. Data that are available indicate a range of urban health hazards and associated health risks: substandard housing, crowding, air pollution, insufficient or

contaminated drinking water, inadequate sanitation and solid waste disposal services, vector-borne diseases, industrial waste, increased motor vehicle traffic, stress associated with poverty and unemployment, among others. The impact of these problems on the health of urban dwellers requires an assessment of environmental health services and a revitalized role of public health in solving them. The WHO continues to play a role in the development of the concept of adopting a holistic and integrated approach to improving the health status of the population. However, rapid and often unplanned urban growth is often associated with poverty, environmental degradation and population demands that outstrip service capacity.

MENTAL HEALTH

Urbanization is affecting the entire gamut of population especially the vulnerable sections of society - elderly, children and adolescents, and women. Rapid urbanization has also led to creation of "fringe population" mostly living from hand to mouth which further adds to poverty. Poverty and mental health have a complex and multidimensional relationship. Urban population is heavily influenced by changing cultural dynamics leading to particular psychiatric problems like depression, alcoholism, and delinquency. Judicious use of resources, balanced approach to development, and sound government policies are advocated for appropriate growth of advancing economies of South-Asian region. The multiculturalism of today's cities contributes to increased tolerance, better quality of life, and sociocultural stimulation; at the same time, it often contributes to heightened social tensions, interethnic striving, and cultural conflicts - all of which undoubtedly carry mental health ramifications.

MULTICULTURALISM

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practiced or imposed upon the urban people. If behavior is unduly suppressive, it may result in learned helplessness leading to stress-related disorders. Migration to cities has increased dramatically over the past few decades. Most migrants come from rural areas, bringing values, beliefs, and expectations about mental health that are often very different from the ones they encounter in their new location. In many instances, people coming from rural areas have endured years of isolation, lack of technologic connection, poor health, poverty, unemployment, and inadequate housing. They need to acculturate and adapt not only to a new challenging urban environment, but also to alternative systems of symbols, meanings, and traditions. The multiculturalism of today's cities can only be developed if one has **increased tolerance**.

OLD AGE

Urbanization alters the dynamics of society at large and family in particular. Rapid urbanization has created a huge population of older men and women left to fend for themselves in the rural areas while the young make their living in the cities. This also means less availability of caregivers when older people fall ill.

WOMEN

Women are particularly vulnerable and they often disproportionately bear the burden of changes associated with urbanization. In the rural setup, they would work mostly at homes but the predominantly nuclear setup of the cities and sheer economics is forcing women to venture out. Domestic violence is also highly prevalent in urban areas. In both developed and developing countries, women living in urban settings are at greatest risk to be assaulted by intimates. Women had significantly higher prevalence rates for neuroses, affective disorders, and organic psychoses than men. A survey carried out in Nepal demonstrated that women had a higher psychiatric morbidity than men. In deprived countries, women bear the burden of responsibilities of being wives, mothers, educator, and careers; at the same time a part of labor force. In 25-33% households, they are the prime source of income. Significant gender discrimination, malnutrition, overwork, domestic, and sexual violence add up to the problems. Social support and the presence of close relationships (more commonly observed in rural society) appear to be protective against violence. The women although have a greater role to play in the urban setup, but the rise in hierarchy in society that should rightfully accompany this

increased demand on them is still missing. The rate of mental distress has been reported to be high also in working which has lead to the development of topic for discussion i.e. **Urbanization and psychiatry.**

CHILDREN

By 2025, 6 of 10 children will live in cities. As a result of rural-urban migration and high fertility rates, it is estimated that about 50% of the urban population in developing countries is younger than 25 years. In addition, there are approximately 30 million street children worldwide, and most of them are involved in illegal activities in urban areas. Children and adolescents in socioeconomically deprived urban areas are often drawn to antisocial behavior. Although not exclusively an urban phenomenon, it thrives in inner cities where degradation, poverty, drug use, and unemployment result in an explosive blend favoring violent solutions.

ECONOMY

Rapid urbanization has also led to creation of "fringe population" mostly living from hand to mouth which further adds to poverty. Poverty and mental health have a complex and multidimensional relationship.

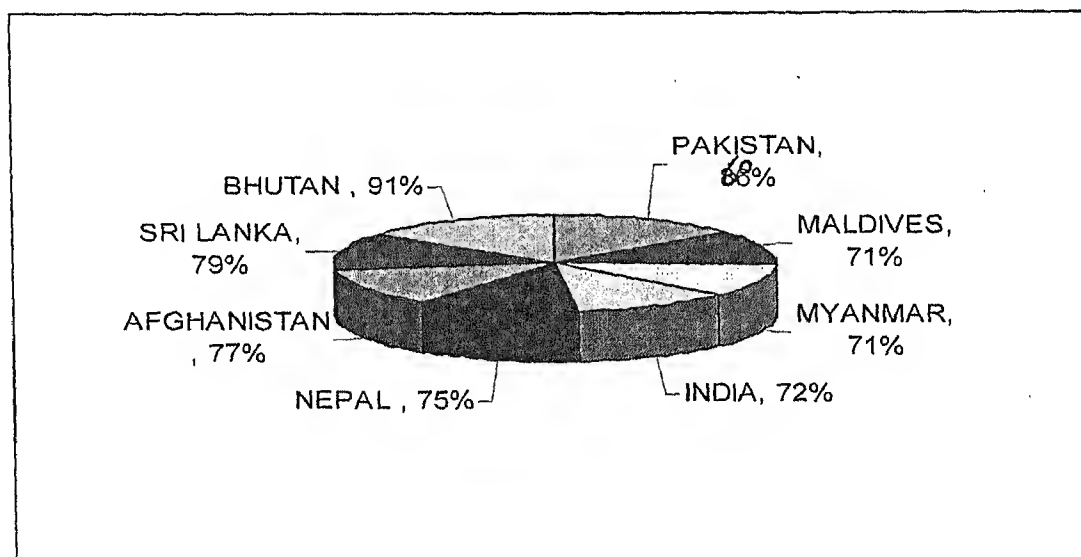
HOSPITALS

Migration to cities has increased dramatically over the past few decades. Most migrants come from rural areas, bringing values, beliefs, and expectations about mental health that are often very different from the ones they encounter in their new location. These countries tend to have a higher burden of diseases and have an already compromised primary health care delivery system. They are also plagued by lack of awareness of the constituting population, stigma associated with mental illness, poverty, and illiteracy. Rapid urbanization puts immense pressure on both physician and patient. Sound doctor-patient relationship becomes almost impossible in busy clinics. In view of large number of patients, time constraints and wide range of diseases, making accurate diagnosis and proper follow-up are almost impracticable. This leads to a high rate of clinical errors and superfluous diagnostic tests. Thus, it is a heterogenous mix of problems and categorizing them to one particular subtype seems daunting and undesirable.

The other important problems can be increase of population in cities, forced to live in small houses, daily used items will be costly, pollution problems and no agriculture land.

DATA FROM SOUTH ASIAN COUNTRIES SHOWING THE PEOPLE RESIDING IN RURAL AREAS

PAKISTAN- 68%
MALDIVES- 71%
MYANMAR- 71%
INDIA- 72%
NEPAL- 75%
AFGHANISTAN- 77%
SRI LANKA- 79%
BHUTAN- 91%



DATA FROM WORLD POPULATION DATA SHEET SHOWING URBANISATION SCENARIO IN INDIA

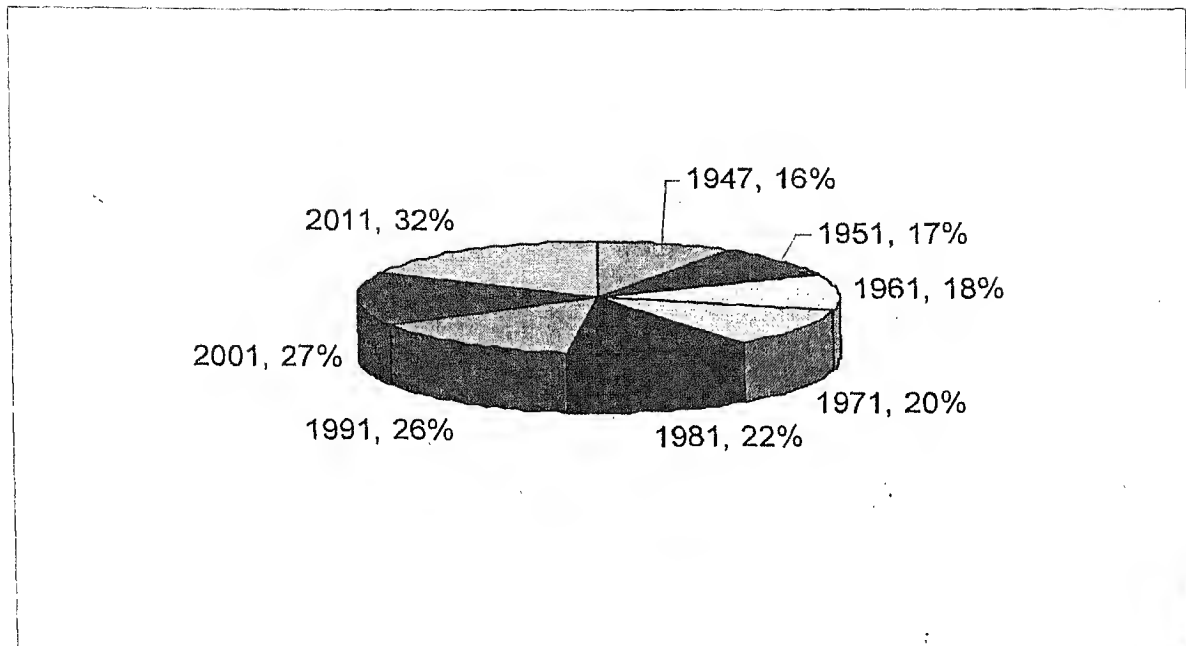
1947-16%
1951-17%
1961-18%
1971-20%
1981-22%

1991-26%

2001-27%

2011-32%

2021-35%



CONCLUSION

Rapid and extensive urbanization is one of the most significant features of life in Uttar Pradesh. The city life will become more of influences and responses. There is really a requirement of study in terms of social, cultural and demographic impacts on cities life. There are changes due to urbanization but in my view the essence of rural environment should be maintained. Though the peoples are moving to cities but still the real and the majority of INDIA lives in the villages having their own importance and the life style. The companies should either protect them by performing social responsibilities rather capture them.

**POST REFORM RESTRUCTURING OF
EMPLOYMENT IN URBAN PERIPHERIES : A
CASE STUDY OF NATIONAL CAPITAL REGION
OF INDIA**

Rupinder Kaur

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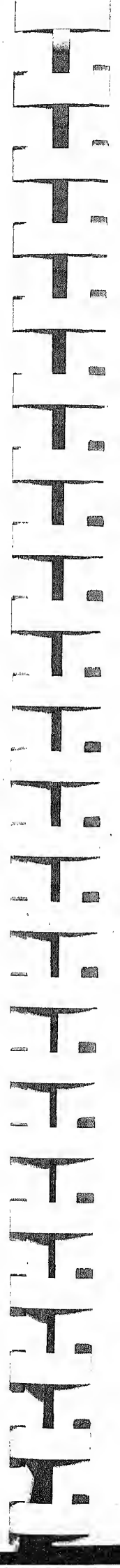


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POST REFORM RESTRUCTURING OF EMPLOYMENT IN URBAN PERIPHERIES- A CASE STUDY OF NATIONAL CAPITAL REGION OF INDIA

Rupinder Kaur

I. INTRODUCTION

Metropolisation can be defined as an urban phenomenon based on two movements: the concentration of population and wealth in the biggest agglomerations and expansion of these agglomerations that overwhelmed the classical opposition between rural and urban areas. A metropolis is a large population centre consisting of a large metropolis and its adjacent zone of influence, served by one or more large cities as its hub or hubs. A metropolitan area usually combines an agglomeration with peripheral zones not themselves necessarily urban in character but closely bound to the centre by employment or commerce, these zones are also known as commuter belt. After the market oriented reforms in early 1990's, following the East Asian model, foreign investment is seen as key to economic growth and metropolises are seen as likely foreign investment destinations, so the state takes action to reconfigure the metropolis to accommodate new growth. With this view, advocacy of decentralization stem from the perception that the existing metropolitan central business districts are very congested and therefore unmanageable and inefficient, so the growth has to be accommodated elsewhere within the metropolitan area. In this connection it is expected that these structural changes would altered the pattern of urbanization as well as employment structure in metropolitan areas during reform period ie. 1991 to 2000.

Delhi has been one of the fastest growing metropolises over the past few decades in India covering 33578 sq. km. spanning 14 districts in Haryana, Rajasthan, and Uttar Pradesh and NCT of Delhi. It is in this context that present paper attempts to analyse the changes in the structure of employment and its spatial distribution in National Capital Region of India. Section II details the data source and concepts used. Section

III looks at the pattern of urbanisation. Section IV considers the size and composition of workforce.. Section V analyses the distribution of workers by different industrial groups. Section VI looks at the share of male and female workers in various industrial groups. Section VII analyses distribution of main and marginal workers in different industries. VIII deals with distribution of migrant workers in various industrial groups. The IX section is about sectoral and spatial concentration of employment and X i.e. final section is concluding note.

II. DATA SOURCE AND CONCEPTS

Since the paper aims to examine the changes in workforce structure in National Capital Region (NCR), a district level data has been used provided by census of India in its 'b series'. Since, the classification of employment categories changed between two years, the comparable figures were obtained using National Industrial Classification 1987.

The analysis has been done for males and female separately in both rural and urban areas, for National Capital Territory Delhi and ten adjoining districts comprising NCR according to 1991 census as three new districts namely Jhajjar, Bhagpat and Gautam nagar were carved out between two censuses.

Census classify workers into two categories: a person who has worked for six months or more during the last one year is termed as 'Main Worker' otherwise he/she is a 'Marginal Worker'. To show the distribution of migrant workers in various industrial groups, migrant workers whose last residence was outside the district are taken into consideration. Pattern of urbanization has been shown using census typology of urban places based on population size.

III. PATTERN OF URBANIZATION

Urbanization may have different connotation for different people, for instance it's a concentration of population at a particular place, and process of social change, and modernization but for our concern urbanization is best seen as shift from agriculture to manufacturing and tertiary sector or movement of capital from primary to

secondary and tertiary circuit.

Figure:1

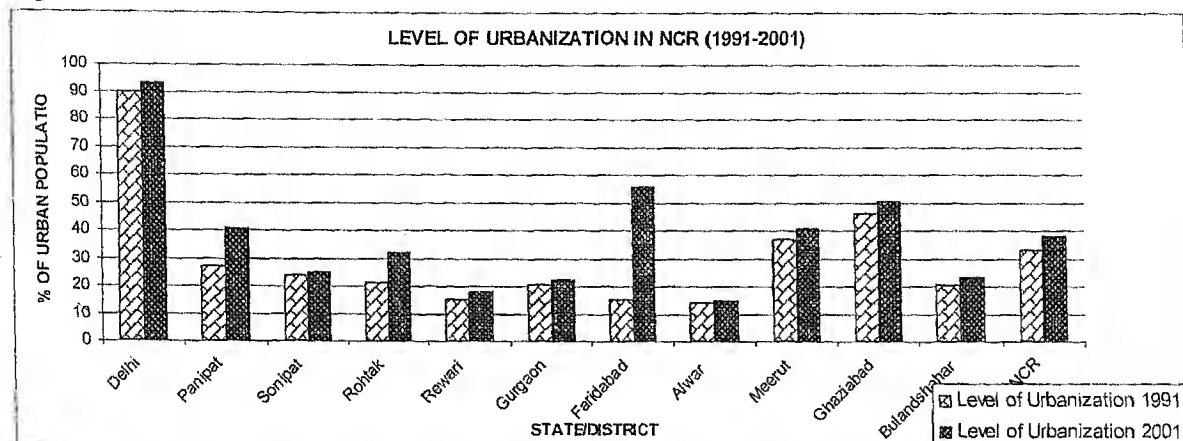


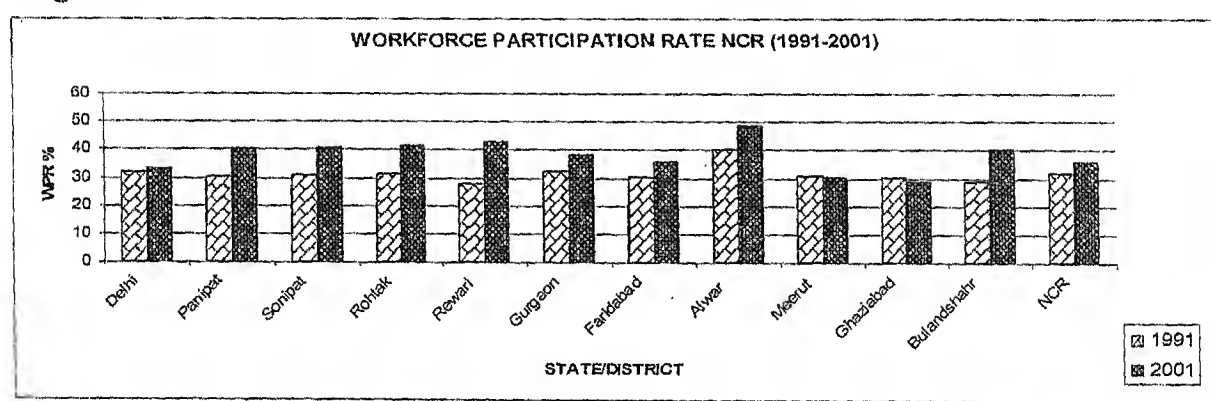
Table 1 shows the distribution of different size class towns in 1991 and 2001 indicating heterogeneous pattern of urbanization and disproportionate growth of towns where number of towns in lower size class has declined and large towns have increased during this period. With the highest level of urbanization at both the points of time Delhi has shown little increase in its urbanization as it is near to its saturation level. District like Faridabad, Panipat and Rohtak have recorded a significant increase in their level of urbanization, while other districts have shown marginal increase in their urban proportion. Thus National Capital Region is characterized by a heterogeneous urban pattern. Such regions are called Desakota, the term used by Terry McGee to refer Asia's sprawling urban settlements, combining the word desa (village) and kota (city) to highlight the mixed rural-urban character of such agglomerations. Basically it is an impact of extended metropolis in the outskirts or hinterland of rural areas which gets transformed when urbanization spill over.

IV. SIZE AND COMPOSITION OF WORKFORCE

Table 2 presents total, male and female workforce participation rates (WPR), for both rural and urban areas during 1991 and 2001 for all constituent district and NCR as a whole and table two shows the growth rate of WPR and level of urbanization as well as their correlation. In NCR the total WPR has increased by 6% points i.e. mainly

due to huge increase in female WPR as male WPR has remained stagnant during the same period. Rural areas have recorded 7% increase in WPR compared to 1% in urban areas. Male WPR in rural areas has shown only a marginal increase of 1% whereas it has declined by 2% points in urban areas. On the other hand female WPR has significantly increased in both rural and urban areas especially in rural areas indicating the feminisation of employment. Among the districts, Alwar is the least urbanised district of NCR has recorded highest WPR at both points of time especially in case of female workers and rural areas. There is only marginal increase in male WPR but female WPR has increased significantly in most of the district except Delhi, Ghaziabad and Meerut which are more urbanized districts of NCR because female WPR has increased much sharply in rural areas as higher female WPR is primarily associated with agriculture distress and poverty which is mainly concentrated in rural areas.

Figure:2



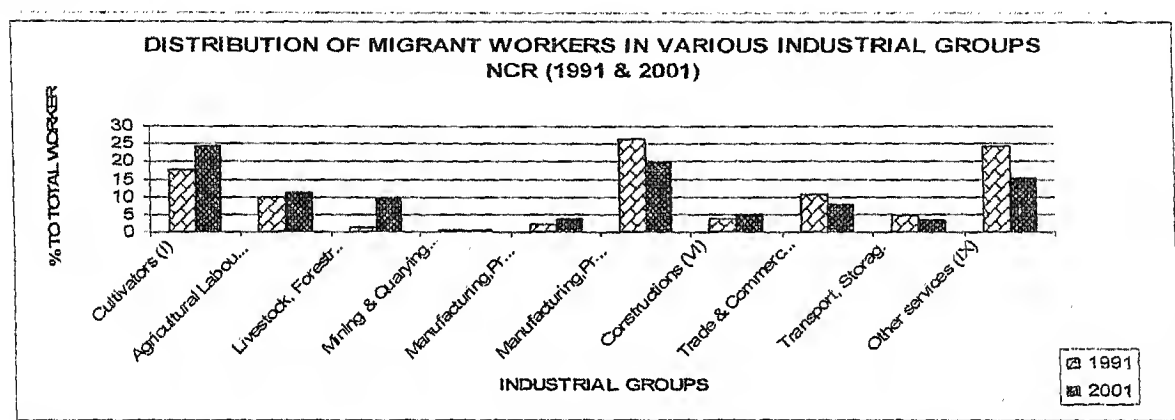
The relationship between the growth rate of level of urbanization and WPR during this period is found to be negative indicating that higher level of urbanisation leads to lower WPR whereas higher WPR in rural areas is a consequence of distress agriculture.

V. DISTRIBUTION OF WORKFORCE BY BROAD INDUSTRIAL GROUPS

Table 4,5 and 6 presents the distribution of total workers among broad industrial groups as total, rural and urban separately. In terms of sectoral distribution of

workforce NCR has experienced shift from agriculture to secondary sector. In 1991 primary sector was the largest sector in NCR employing 40% of workforce, followed by service sector (39%) and secondary sector (21%). Whereas in 2001 service sector was major sector with 38.5 % of workforce which was followed by agriculture (36.4 %) and secondary sector (25.1 %). During 1991 to 2001 primary sector has declined from 40% to 36.4% in terms of its share in total workforce whereas secondary sector has grown by 4 percentage points while service sector remained stagnant with its 39% share in total workforce. Taking rural urban areas separately, rural areas have dominance of primary sector at both points of time followed by service sector and secondary sector, while in urban areas service sector is largest sector followed by secondary sector and primary sector.

Figure:3



Delhi which is the core urban centre of this region has huge portion of its workforce in service sector at both points of time i.e. 65% in 1991 and 64 % in 2001. Its service sector accounts for 32.4% workforce in 1991 and 34.1% in 2001 while primary sector with its smallest share has declined from 3% in 1991 to 2.3% in 2001. Thus no sector has shown a significant change in Delhi. Among the other districts Alwar with lowest level of urbanization is mainly characterized by primary sector with its 79% share in 1991 and 76.8% in 2001. But within primary sector it has shown some diversification by increased share of workers in livestock, forestry and allied activities. All the districts except Sonipat have observed decline in share of cultivators in workforce but it has shown a considerable increase in livestock, forestry fishing hunting and plantation, orchards and allied activities moving towards non farm diversification. A

huge increase in share of Allied activities is a consequence of surplus labour in declining agriculture sector which has not been absorbed by secondary and service sector because this part of labour force is largely illiterate and unskilled. Share of workers in manufacturing sector is common in all districts. In case of non household manufacturing industry only Faridabad and Ghaziabad have declining share of workers as their service sector particularly trade and commerce and transport storage and communication are absorbing more workforce, while Gurgaon has improved its share in manufacturing and construction industry.

The distribution of rural and urban workers in broad industrial groups has been shown in table 5 & 6. Distribution of rural workers in broad industrial groups shows a decline in share of agricultural labourers in total workforce for all districts, same is the case of cultivators' category except for Sonipat where its share has increased between 1991 and 2001. There is considerable increase in share of workers in livestock, forestry, fishing, hunting and plantations, orchards and allied activities for all districts. This increase along with the decline in agricultural labourers is a positive sign for agriculture sector. Added to this, there is increase in the share of workers in manufacturing sector and construction and trade and commerce industry which have positive implications for rural development as well as urbanization.

In case of urban workers, there is considerable decline in their share in agriculture sector, while household manufacturing industry and construction have grown in terms of their share in workforce for all districts. Growing construction industry in the adjoining districts of Delhi is employing a significant portion of unskilled and semi-skilled workers. It is also creating a built environment in these districts which is necessary for the expansion of service sector especially more sophisticated economic activities. According to David Harvey this the most important phase for the development of a region. There is a decline in share of non household industry in districts of Faridabad, Sonipat, Rewari, Alwar and Ghaziabad. All the districts have shown decline in their share of workers in other services category. In rural workforce structure, it is observed that there is a shift of employment from agriculture to non farm activities with declining share of agricultural labourers within the agriculture

sector along with increasing share of workers in manufacturing construction and trade and commerce industry which leads to the spread of growth in rural areas as well. On the other hand, in the urban workforce structure there are not such major shifts besides increasing share of household industry, construction industry along with the decline in non household industry and growth of trade and commerce in some selective districts.

VI. DISTRIBUTION OF MALE-FEMALE WORKERS BY MAJOR INDUSTRIAL GROUPS

Table 7 to 12 present distribution of male and female workers in for total, rural and urban areas separately among major industrial groups. During 1991 a large proportion of both males (24.69%) and females (45.10%) were cultivators. The second major industrial group employing both the genders was other services while in 2001 major industry other than cultivators was agriculture labourers for males and allied activities for females. During this period some industries like manufacturing in other than HHI, transport storage and communication and other services have experienced decline in their share for both the genders whereas proportion of agricultural labourers, allied activities and manufacturing in HH industry has increased for males and females both. Two industries namely cultivators, construction and trade and commerce have also shown increase in their share in case of male workers.

Table 13, 14 and 15 shows the share of male and female workers in different industrial groups. Here it is observed that share of female workers in total workforce has increased in case of both rural and urban areas during 1991 and 2001 in NCR. In 1991 females constituted 15.5% of workforce which increased by 8%, reaching 24% in 2001. This increase in share of female workers was marginal in Delhi while it is much significant in districts of Haryana. Further the share of female workers in rural areas has shown a significant increase compared to their urban counterpart. In rural areas females constituted 21 % of workforce compared to 10% in urban areas, while in 2001 they accounted 35% of rural workforce and 13% of urban workforce. In terms of proportion of male-female workers in different industries one common

expected fact is that all industrial groups are dominated by males at both points of time except for one category i.e. Livestock, forestry, fishing, hunting and plantations, orchards and allied activities, showing a reversed trend. During 1991 share of female workers in this category was 15% in NCR ranging from 7 to 27% while in 2001 it was 69%. Besides construction industry where share of female workers has declined other industries have recorded an increase in share of female workers.

During 1991-2001 proportion of female workers in total workforce has increased from 16% to 24%. A large part of female workforce has been concentrated in agriculture sector but there was a shift within agriculture sector from cultivators and agricultural labourers to allied activities, along with marked increase in share of allied activities and manufacturing in HH industry.

VII. SHARE OF MAIN AND MARGINAL WORKERS AMONG BROAD INDUSTRIAL GROUPS

Table 16, 17 and 18 gives share of main and marginal workers in different industrial groups. It is observed that during 1991 to 2001, share of marginal workers in total workforce has increased from 7% in 1991 to 19% in 2001. Compared to other districts, Delhi has smallest share of its marginal workers at both points of time i.e. 0.4% in 1991 and 5% in 2001 while other districts have shown a significant increase in their proportion of marginal workers. Industries in primary and secondary sector have higher proportion of marginal workers at both points of time compared to service sector. In 1991, marginal workers in service sector industries generally accounted less than 1% of total workers in all districts whereas in 2001, there is marked increase in share of marginal workers in all industrial groups especially in manufacturing, construction and service sector in all districts. Increase in the share of marginal workers in these industries is linked with the growth of informal sector in NCR which absorbs a large number of unskilled and semi skilled labour in low paid jobs. Construction is another major industry emerging in NCR creating a built environment in adjoining districts of Delhi as a consequence of suburbanization and decentralized planning in this region. During 1991 to 2001 share of main workers in

total workers has declined in rural and urban both the areas but it is much sharper in rural areas. Marginal workers have larger proportion in agriculture sector in 1991. Their share in cultivators was 16% and 15% in agricultural labourer followed by livestock, forestry, hunting, fishing and allied activities, manufacturing and cultivators.

In urban areas between 1991 and 2001, there was significant increase in share of marginal workers in agricultural labourers, livestock, forestry, hunting, fishing and allied Activities and manufacturing.

Among main workers share of female workers has increased from 10% in 1991 to 16% in 2001 in NCR but it is mainly concentrated in agriculture sector while among marginal workers share of female workers has declined from 91% to 58% during same period. The large increase in the share of marginal workers during the reference period may be attributed to the large scale movement of surplus labour from distress agriculture to non farm activities like allied activities, construction and manufacturing in HH industries growing in this region and also comprise a major portion of their workforce as casual labourer.

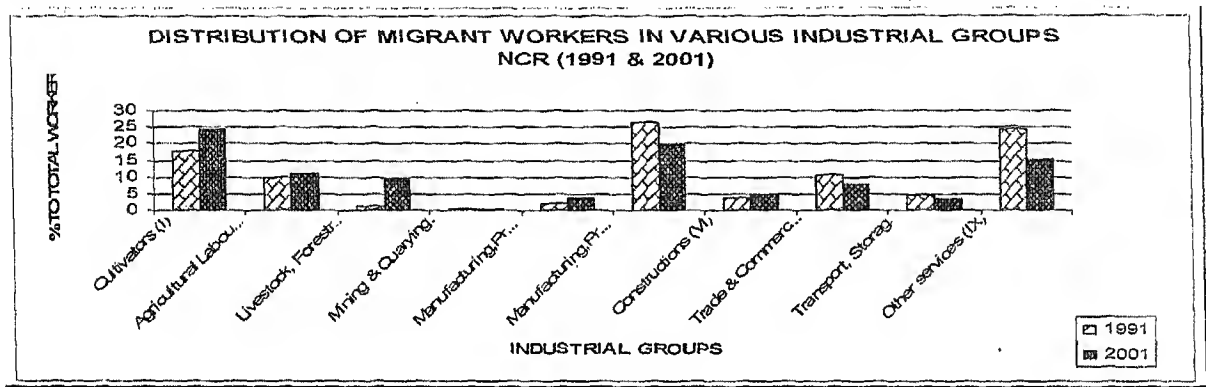
VIII. DISTRIBUTION OF MIGRANT WORKERS BY MAJOR INDUSTRIAL GROUPS

Table 19, 20 and 21 shows the distribution of migrant workers (whose last residence was out of district) in major industrial groups. Between 1991 and 2001 number of migrant workers coming to NCR has shown a sharp increase i.e. 2042887 in 1991 and 4624072 in 2001. In 1991 Delhi accounted for 73% of total migrant workers coming to NCR, while in 2001 it declined to 56%. During 1991, large proportion of migrant workers was concentrated in few urban districts in close proximity to Delhi. These districts are Faridabad with 7% of total migrant workers and Ghaziabad (4%). While in 2001, the spatial pattern of migrant workers was dispersed, where Delhi has only 56% share of migrant workers in NCR, followed by Faridabad (7%), Ghaziabad (9%), Rohtak(5%) and Gurgaon (4%). It suggests that towns in these adjoining districts are acting as counter magnets for attracting migration as well as industries

which are creating employment opportunities in the hinterland of Delhi and search for employment has driven the newest in migrants far beyond the saturated labour market of Delhi to remote parts of NCR.

During 1991, larger proportion of workers in NCR was engaged in manufacturing, processing, servicing and repairs in other than household industry (26.5%), followed by other services, cultivators, trade and commerce and agricultural labourers, while in 2001 largest proportion of workers was concentrated in cultivators, followed by manufacturing, processing, servicing and repairs in other than household industry, other services and agricultural labourers.

Figure:4



Between 1991 and 2001 there was increase in proportion of migrant workers in manufacturing, processing, servicing and repairs in household industry whereas it declined in manufacturing, processing, servicing and repairs in other than household industry. There was increase in proportion of migrant workers in agriculture sector, but their proportion has declined in service sector. In 1991 large proportion of rural migrant workers were cultivators or engaged in other services, agriculture labourers and manufacturing in non HH industries while in 2001, besides cultivators, manufacturing in HH industry was major sectors employing rural migrant workers followed by agricultural labourers and other services. In case of urban migrant workers, their larger share is employed in other services, manufacturing in non HH industries and trade and commerce. Here it is important to be noted that rural migrants are mainly employed in low productive industries requiring unskilled and semi skilled labour, on the other hand urban migrants having certain level of

education and skill manage to find job in relatively productive sectors which require skilled labour. During this period, three industries- allied activities, cultivators and manufacturing in HH industry have reported increase in case of rural and urban migrants both, while construction industry has shown rise its share of rural migrant workers only since this is an expanding industry in this region and constitute large part of informal employment.

IX. SECTORAL AND SPATIAL CONCENTRATION OF EMPLOYMENT

As shown in table 22, this section shows the sectoral and spatial concentration of employment in NCR region using Herfindhal-Hirschman index (HH index) for major industrial groups. The HH index is defined as the sum of the squares (in %) of employment shares in each state. HH index has maximum value of 10000 when only one sector has all the employment (100%) and has a lower bound of 1111 that is all the sectors have an equal share. Lower the estimated HH index more equal the sector shares and more diversified is the economy.

The HH index in 2001 showed a decline in its value showing negative change in index during 1991 to 2001 which implies diversification of employment in all constituent districts of NCR. But what important here is to be noted that rural districts have shown more diversification of employment compared to urban districts, as the core urban centre of NCR Delhi has reported minimum diversification while the rural districts of Bulandshehr, Gurgaon, Faridabad and Panipat have shown much high diversification.

The HH index of spatial concentration shows decentralization of employment in all industrial groups except agriculture and allied activities which have shown concentration of employment but it is more prominent in case of allied activities. These industrial categories are primarily concentrated in rural districts like Alwar, Rewari and Sonipat. On the other hand maximum decentralization of employment in construction and manufacturing in HH industry which are expanding industries in this region. This expansion of these industries can be attributed to the planning policies which emphasise on decentralization, large scale infrastructure projects.

IX. CONCLUSION

The new economic policy adopted in early 1990s has a significant impact on industrial structure of economy, specifically in large metropolitan areas as they act as growth engines of economy characterised by concentration of industries and scale of economies as well as cumulative effects of growth. The industrial restructuring has in metropolitan areas is closely associated with changing structure of employment in these areas. Present paper attempts to analyse the changes in employment structure in NCR between 1991 and 2001. It is observed that there is emergence of a new polycentric spatial structure of employment and urbanization in this region during same period. In this process Delhi has become core of an expanding urban region.

It is observed that between 1991 and 2001, increase in work participation rate has been marginal in Delhi while it is much significant in other districts of NCR like Panipat, Sonipat, Ghaziabad and Bulandshehr, as these districts have emerged as new industrial districts in NCR. In terms of share of workers in different industrial groups, Delhi has declined in agriculture sector, while other industrial groups have either shown decline or stagnating. Whereas manufacturing in household and non household industry and construction industry has shown a significant growth in other districts in terms of their share of employment. This shift of employment from core city to its hinterland is also observed case of spatial distribution of migrant workers coming to NCR. There is sharp decline in proportion of migrant workers in Delhi, whereas Ghaziabad, Faridabad, Rohtak and Gurgaon have become new destinations for migrant workers in NCR.

The change in the structure of employment in NCR is closely associated with planning process which emphasises on decentralised planning in Delhi metropolitan area. For instance National Capital Region Planning Board (NCRPB) was established under NCR Planning Board Act 1985 by the Ministry of Urban Development to systematically develop India's National Capital Region. The NCRPB emphasizes building water supply and sanitation infrastructure and has plans to scale up support

for urban infrastructure development. The NCRPB has provided financial assistance to participating state governments, urban local bodies (ULBs), housing boards and development authorities for infrastructure development projects in the NCR and identified counter-magnet area towns over the last 20 years. To date the NCRPB has financed 171 infrastructure projects. Regional development plans like master plan of Delhi has played an important role by improving connectivity between Delhi and adjoining districts by means of national highways, express highways and flyovers which helped in process of decentralization of economic activities as well as employment. Besides, this decade has also experienced a shift of certain industrial units like hazardous industries out of Delhi. The emergence of these industrial districts is also linked with the decline of core metropolitan district and rise of some bordering districts in terms of investment. Chakravarty (2000) pointed out that after the structural adjustment in India, sub urban districts have become more important investment destinations than core urban districts. Advance regions have been favoured by new investment but within the advance region, the old most favoured districts no longer enjoy that primacy, but different districts, usually within same cluster have forged ahead (Chakravarty, 2000).

Thus evolution of NCR from monocentric to polycentric metropolis suggests a restructuring of employment as well as reordering of urban space which is manifested on space as concentrated decentralization.

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Table 2

WORK PARTICIPATION RATES IN NATIONAL CAPITAL REGION 1991										
Sr.No.	State/District	TOTAL			RURAL			URBAN		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
1	Delhi	31.64	51.72	7.36	29.12	48.23	5.46	31.92	52.11	7.57
2	Panipat	30.25	49.56	7.65	30.36	48.87	8.53	29.97	51.43	5.32
3	Sonipat	30.65	47.89	10.15	31.65	48.29	11.62	27.42	46.54	5.52
4	Rohtak	31.42	46.80	13.35	32.55	46.87	15.56	27.24	46.51	5.36
5	Rewari	27.79	42.72	11.67	27.75	41.72	12.88	27.99	48.04	4.65
6	Gurgaon	32.06	46.52	15.46	33.08	46.35	17.78	28.05	47.18	6.47
7	Faridabad	30.34	48.07	8.91	30.68	45.78	12.74	29.97	50.46	4.79
8	Alwar	40.37	47.76	31.97	42.20	47.74	35.95	29.09	47.89	6.47
9	Meerut	30.51	49.69	8.00	32.24	50.74	10.19	27.58	47.86	4.37
10	Ghaziabad	30.23	48.24	8.58	30.98	48.13	10.38	29.36	48.38	6.48
11	Bulandshahr	28.97	47.41	7.42	29.64	47.74	8.33	26.44	46.16	4.03
12	NCR	31.59	49.24	10.69	32.62	47.86	14.72	30.57	50.60	6.68
WORK PARTICIPATION RATES IN NATIONAL CAPITAL REGION 2001										
	State/District	TOTAL			RURAL			URBAN		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
1	Delhi	33.06	52.45	9.43	31.79	49.49	9.84	33.16	52.67	9.40
4	Panipat	40.02	51.41	26.30	42.66	50.25	33.60	36.15	53.10	15.46
5	Sonipat	40.76	49.41	30.47	44.38	50.51	37.06	29.99	46.10	10.97
6	Rohtak	41.06	49.34	31.30	45.32	50.45	39.26	30.50	46.57	11.54
7	Rewari	42.86	48.98	36.05	45.68	49.31	41.71	29.83	47.53	9.03
8	Gurgaon	38.40	47.53	27.96	40.04	46.77	32.36	32.70	50.14	12.50
9	Faridabad	35.62	47.97	20.90	41.23	46.02	35.65	31.14	49.49	8.87
10	Alwar	48.79	53.05	43.99	51.63	53.79	49.23	32.09	48.87	12.06
11	Meerut	30.23	46.27	11.68	32.77	47.18	16.02	26.49	44.92	5.36
12	Ghaziabad	28.93	45.95	9.03	29.71	45.18	11.66	28.15	46.72	6.43
13	Bulandshahr	40.16	50.92	27.94	40.16	50.92	27.94	40.16	50.92	27.94
3	NCR	38.17	49.39	25.00	40.49	49.08	30.39	31.85	48.82	11.78

Table 3

GROWTH OF WPR AND LEVEL OF URBANIZATION (1991-01)

Sr. No.	District	Growth rate of WPR	Growth rate of level of urbanization
1	Delhi	4.50	3.43
2	Panipat	32.29	49.19
3	Sonipat	32.98	6.58
4	Rohtak	30.70	49.01
5	Rewari	54.24	16.73
6	Gurgaon	19.78	9.72
7	Faridabad	17.40	264.25
8	Alwar	20.87	4.17
9	Meerut	-0.93	9.35
10	Ghaziabad	-4.32	8.97
11	Bulandshahr	38.61	10.81
12	NCR	20.84	13.86
CORRELATION		-0.01	

Table 21

RURAL MIGRANT WORKERS ACCORDING TO THEIR LAST RESIDENCE OUTSIDE THE DISTRICT (2001)											
Sl.No.	State/District	Cultivators (I)	Agricultural Labourers (II)	Livestock, Forestry, Fishing, Hunting & Plantations, Orchards & Allied Activities (III)	Mining & Quarrying (IV)	Manufacturing, Processing, Servicing & repairs in HHI (Va)	Manufacturing, Processing, Servicing & repairs in other than HHI (Vb)	Constructions (VI)	Trade & Commerce (VII)	Transport, Storage & Communications (VIII)	Other services (IX)
1	Delhi	0.45	0.36	1.07	0.45	2.42	28.51	12.24	20.76	9.72	24.03
2	Panipat	15.73	13.82	9.16	0.31	3.43	38.91	4.43	5.49	1.95	6.78
3	Sonopat	31.13	17.57	10.14	0.27	2.29	22.71	4.33	3.41	1.67	6.47
4	Rohtak	39.95	12.67	6.43	0.12	1.94	21.47	4.21	3.16	1.39	8.65
5	Rewari	43.20	16.69	12.03	0.20	2.04	12.24	3.74	2.95	0.97	5.94
6	Gurgaon	24.99	10.30	19.39	1.58	2.80	18.44	7.36	5.01	1.69	8.45
7	Faridabad	12.46	9.99	6.38	0.96	2.54	29.72	9.20	11.22	4.17	13.36
8	Alwar	59.69	11.64	10.25	0.10	1.91	9.50	1.78	1.85	0.60	2.67
9	Meerut	27.73	18.34	12.50	0.06	6.06	10.69	2.83	5.82	2.96	13.00
10	Ghaziabad	8.33	5.42	5.72	0.33	4.52	23.12	9.77	13.04	7.08	22.65
11	Bulandshahr	30.30	20.69	25.61	0.02	7.09	4.14	0.64	3.52	0.72	7.27
URBAN MIGRANT WORKERS ACCORDING TO THEIR LAST RESIDENCE OUTSIDE THE DISTRICT (2001)											
1	Delhi	0.13	0.10	0.38	0.30	2.68	20.53	4.44	21.22	7.66	42.57
2	Panipat	2.66	4.06	2.75	0.19	8.55	37.91	3.01	12.00	3.54	25.33
3	Sonopat	13.34	11.91	4.57	0.26	2.97	16.01	3.66	11.86	3.41	32.01
4	Rohtak	12.79	7.69	3.86	0.17	3.58	16.66	4.17	11.34	3.94	35.80
5	Rewari	17.90	10.04	5.52	0.22	4.51	17.22	3.55	10.35	3.14	27.55
6	Gurgaon	4.71	3.30	4.28	0.34	2.50	21.29	5.58	11.89	5.49	40.63
7	Faridabad	1.86	1.80	1.32	0.52	3.23	29.32	4.28	16.14	5.82	35.71
8	Alwar	28.30	9.88	5.08	0.06	4.56	15.99	3.53	8.25	2.81	21.54
9	Meerut	6.53	6.13	4.42	0.15	4.74	16.03	4.51	12.48	5.01	39.99
10	Ghaziabad	1.56	1.07	1.45	0.32	4.01	18.94	4.45	15.59	7.10	45.52
11	Bulandshahr	12.46	12.68	11.41	0.15	8.68	9.87	1.15	8.76	2.86	31.97

Table 7
DISTRIBUTION OF MALE WORKERS AMONG BROAD INDUSTRIAL GROUPS (1991)

Sr.No.	State/ District	Cultivators(I)	Agricultural Labourers (II)	Livestock, Forestry, Fishing, Hunting & Plantations, Orchards & Allied Activities (III)	Mining & Quarrying (IV)	Manufacturing, P rocessing, S ervicing & repairs in HHI (Va)	Manufacturing, Processing, S ervicing & repairs in other than HHI (Vb)	Constructi ons (VI)	Trade & Commerce (VII)	Transport, Storage & Communica tions (VIII)	Other services (IX)
1	Delhi	1.17	0.86	0.67	0.22	1.40	24.68	8.00	25.20	8.89	28.91
2	Panipat	33.66	20.21	0.41	0.00	2.70	14.92	2.08	10.48	2.83	12.71
3	Sonipat	30.94	16.58	0.56	0.00	1.55	12.82	2.37	8.90	5.53	20.73
4	Rohtak	40.40	15.05	0.92	0.01	1.04	6.99	2.67	8.74	4.41	19.78
5	Rewari	41.48	11.49	0.94	0.35	2.09	10.01	3.45	8.87	4.43	16.89
6	Gurgaon	39.22	12.59	1.00	0.35	1.40	8.81	3.18	9.39	4.77	19.28
7	Faridabad	25.47	10.76	0.63	0.64	0.93	27.78	4.05	10.72	3.64	15.39
8	Alwar	60.36	7.27	1.20	0.61	1.82	6.61	2.00	6.35	2.60	11.19
9	Meerut	33.11	20.87	1.10	0.01	2.86	12.26	2.26	10.05	3.44	14.05
10	Ghaziabad	26.51	13.25	0.66	0.03	1.39	18.86	3.73	11.35	4.70	19.52
11	Bulandshahr	46.23	21.40	0.52	0.01	1.63	6.79	1.71	7.71	2.26	11.75
12	NCR	24.69	10.25	0.77	0.19	1.65	16.85	4.60	15.07	5.55	20.38
DISTRIBUTION OF FEMALE WORKERS AMONG BROAD INDUSTRIAL GROUPS (1991)											
1	Delhi	1.08	1.48	0.42	0.49	1.66	10.52	6.07	12.45	3.07	62.76
2	Panipat	35.95	35.99	0.30	0.00	1.93	10.26	0.11	1.27	0.13	14.05
3	Sonipat	44.49	31.37	0.29	0.00	0.75	5.01	0.63	1.58	0.44	15.44
4	Rohtak	62.74	21.59	0.38	0.01	0.53	2.64	0.60	0.66	0.17	10.68
5	Rewari	65.73	21.57	0.83	0.05	2.61	1.27	0.34	0.50	0.13	6.96
6	Gurgaon	57.10	29.89	0.36	0.11	0.99	1.58	0.43	1.00	0.18	8.36
7	Faridabad	48.15	24.89	0.28	0.70	0.54	5.48	1.08	2.01	0.23	16.65
8	Alwar	81.91	13.65	0.28	0.06	0.95	0.63	0.11	0.22	0.02	2.17
9	Meerut	42.88	31.25	2.29	0.01	4.14	6.20	0.14	1.57	0.16	11.35
10	Ghaziabad	29.21	16.90	1.51	0.03	1.48	5.38	1.18	1.81	0.28	42.21
11	Bulandshahr	40.61	25.92	1.45	0.02	2.40	2.15	0.11	0.86	0.06	26.42
12	NCR	45.10	16.93	0.71	0.18	1.58	4.74	1.72	3.62	0.82	24.62



RURAL URBAN FRINGE : PROBLEMS AND MANAGEMENT

Prof. S.B. Singh
Department of Geography
Banaras Hindu University, Varanasi

Presidential Address at the
National Seminar on
Problems and Management of Rural Urban Fringe

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Rural Urban Fringe: Problems and Management

S.B. Singh

Distinguished Colleagues, Ladies and Gentlemen,

I would, at the very beginning, like to thank the Director and Faculty, among them my friends both professional and personal for having chosen me for delivering the presidential address to this important seminar on **Problems and Management of Rural Urban Fringe**. It is very relevant in the contemporary context of the developing region and critically important in our own context. I must congratulate Prof. A.K. Singh, Director of the Institute and my friend Prof. S.S.A. Jafri for having selected the theme for discussion and changes that take place in process of this interaction would produce some very useful guidelines for the policy makers on management of the rural-urban fringe, which I must say, is marked by gross mismanagement at present.

I should re-emphasise that the topic is of urgent and critical relevance. Any schemes that existed in the first decade of planned development were relegated to oblivion in the subsequent years. For example there used to be a Development of Town and Country Planning endowed with statutory authority. There were master plans for major urban centers, improvement trusts, and developmental authorities, all have their own story of success.

Friends, as you know cities are dynamic human artifacts and they constantly undergo structural change, redevelopment and growth. Such processes also involve changes in urban relationships with the surrounding territory, most conspicuously on their outskirts. According to 1951 census about 45% of the countries urban population lived in Class I cities which have increased to 69% in 2001. Over the years there has been continuous concentration of population in class I towns. On the contrary the concentration of population in medium and small town either fluctuated or declined (Kundu, 1994). Indeed basic reason for increasing dominance of class I cities is graduation of lower order towns into class I categories. It may be observed that in 1901 there were only 24 class I cities that has gone up to 393 in 2001 which explains largely the increase in the share of population in this size categories to class I has resulted

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top heavy structure of urban population in India. The gain in population of Indian cities, to a greater extent, is due to immigration of rural labour, artisans and educated youth from rural areas in search of better livelihood.

Percentage Distribution of Urban Population
by Size-Class of towns/ Urban Agglomerations in India, 1901-2001

Census Year	Cities	Large Towns	Medium Towns	Small Towns		
	Class -I	Class -II	Class- III	Class -IV	Class -V	Class - VI
1901	26.00	11.29	15.64	20.83	20.17	6.1
1911	27.48	10.51	16.4	19.73	19.13	6.57
1921	29.7	10.39	15.92	18.29	18.67	7.03
1931	31.2	11.65	16.8	18	17.14	5.21
1941	38.23	11.42	16.35	15.78	15.08	3.14
1951	44.63	9.96	15.72	13.63	15.97	3.09
1961	51.42	11.23	16.94	13.77	6.87	0.77
1971	57.24	10.92	16.01	10.94	4.45	0.44
1981	60.42	11.63	14.33	9.54	3.58	0.5
1991	65.2	10.95	13.19	7.77	2.6	0.29
2001	68.62	9.73	12.29	6.8	2.33	0.23

Urbanisation in developing countries is marked by large increases in population and as a physical phenomenon, it takes two paths: firstly through the independent transformation of rural areas into urban areas and secondly expansion of existing urban bodies by engulfing adjoining villages into their territory. The latter process is predominated in India; the trend has been more towards concentration. During process of transformation adjoining areas acquire new character which are neither totally urban nor rural in nature, rather combination of both, which is often called as 'urban fringe'. The study of available literature reveals that the term urban fringe was first introduced by Smith in 1937 to describe built up area just outside the corporate limit of the city. Later the concept of the 'rural-urban fringe' was formulated by Wehrwein in 1942 as the area of transition, between well recognized urban land uses and the area devoted to agriculture, followed by studies of Rodehever (1947), Berg (1948), Cozen (1960), Pryor (1968), Dickinson (1970), Gopi (1978), Patel (1980) Berg and Ijkelstam (1989), Oort (1996), Singh and Gupta (1997) and Dube (2001) which

broadly point out the loss of valuable agricultural land to non-agricultural uses, showing variation in demography, morphology and infrastructural facilities.

Thus, the term Rural-Urban Fringe is comprised of two groups of words – Rural Fringe - Urban Fringe. These two terms denote overlapping boundaries with respect to area, which is distinct in matters of form and function and is often referred as Rurban Fringe. It is a bridge between the rural area on one side and urban center on the other. All the characteristics of urbanity and ruralism are medium in the fringe area. These characteristics vary from town to town on the basis of their physical and cultural status.

Urban fringe development is not only a process of transition of land from its rural use to urban use, rather, it is a complex process that involves many concerns such as change in landownership pattern, land transfer process, types of development, regulatory measures and their enforcement. The process of fringe development is not monolithic and may be taken place either by rural actors or by urban actors, in formal or informal way. In the process of urban development the adjoining villages are gradually changing their rural character into urban landscape and are further sub-divided into primary and secondary fringes based on their proximity to the city and present typical characteristics with regards to the socio-economic setup, and conversion of land uses with rapid increase in population.

Several villages of the fringe, having been deprived of their agricultural land are in the state of flux and remains waiting for their amalgamation within the city limit. In addition urban fringes as the proliferation of various forms of a part time farming seek additional income from the jobs in the town and develop residential or agricultural specialization and intensification, all the urban fringes contain specialized non-agricultural land uses such as vehicle and garbage dumping yards, quarries, water supply areas and sewage and farms. Thus rural-urban fringe areas of Indian cities present change in landuse, increase in commuting population, fast expansion of residential areas, slum development with low public utility services etc. whereas in the west they have planned development in such areas as well.

Hence, land use in the fringe will be looked at from a dynamic point of view, for instance, rural land which is taken over by various urban and rural uses. The agricultural holdings in the fringe tend to be smaller than in the surrounding rural areas as a result of subdivisions and land shortages caused by urban growth. Parts of the remaining agricultural land are insufficiently and inefficiently used as 'social fallow'. Elsewhere in the fringe, farmland may be used more intensively than in the surrounding rural area as market gardening, horticulture, poultry and piggeries.

Gottman's statement that 'the problem of land use changes caused by urban explosion become chronic' is quite valid in case of rural-urban fringes of Indian cities, where part of the cultivable land is sold for houses and factories and much of the farm land lies derelict and abused as a consequences of urban interference into the farming system, enhanced land values through competition between colonizers and industrialist (Gottman, 1963; Dicknson, 1964). Most of the developing countries experience spontaneous development pattern rather than planned growth. The built up area of Indian cities have swelled even more than ten times during a span of hundred years. For instance, the four largest cities of the country have registered growth in their built-up area measuring even more than 100 km² showing a huge concentration of industrial and commercial population. For example Kanpur, the largest metro-city of UP has enlarged its built-up area from 5 km² (1965) to 50 km² (2001). More and more of our fringe villages are likely to fall of urban invasion in the years to come.

Therefore, the problem associated with urban fringe in most developing countries is development of land in informal way where associated land development activities take place without conforming State rules and regulations. Due to high demand of land low lying areas are also being filled up for various development purposes without considering any environmental impact. The emphasis is only on accommodating the increasing population, not to ensure better living standard. Therefore, the newly developed fringe areas are seldom provided with adequate facilities. All the phenomena are nothing but the reflection of poor urban fringe management. It is ironical that our planning

processes still give rise to complexities and contradictions that are integral parts of the urban environment: non-conforming and unsustainable land-uses, relocation of polluting industries, regularisation of illegal settlements and slums. There remain many such rural 'pockets' in the city fabric that are not well integrated and are subjected to the vagaries of market forces, manipulations and speculations.

Due to lack of proper administration and taxation, homogeneous development of the fringe zone is out of question. As a matter of fact, this zone paradoxically lies at a time under the influence of the three administrative agencies- Municipal Board, District Board and Block, among which there is hardly any coordination and integration. It is inevitable to explore the ways and means to stop and restrict such encroachment. In general, more vertical rather than horizontal expansion has to be encouraged so as to prohibit and control the continuing invasion of the countryside.

The organisation of this Seminar by Giri Institute is an event of tremendous significance. I believe the programme covers almost all the important dimensions of the issues at hand. The range of participants promises a rich and varied sharing of expertise and experiences. I am sure that we shall leave this Seminar with a much better understanding not only of the developments taking place in India, but also of the dimensions of the global environmental challenge.

I wish this Seminar a great success.

Thank you.

**APPLICATION AND IMPORTANCE OF ADVANCED REMOTE
SENSING AND GIS TECHNIQUE IN IDENTIFYING THE
ENCROACHMENT OF URBAN AREAS INTO RURAL AREAS –
AN ATTEMPT IN CHINHAT BLOCK OF LUCKNOW
DISTRICT, U.P.**

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Sarika Shukla & Rakesh Singh Kushwaha**
Remote Sensing Application Centre &
I.T. College, Lucknow

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**APPLICATION & IMPORTANCE OF ADVANCED REMOTE SENSING & GIS
TECHNIQUE IN IDENTIFYING THE ENCROACHMENT OF URBAN AREAS
INTO RURAL AREAS—AN ATTEMPT IN CHINHAT BLOCK OF LUCKNOW
DISTRICT, U.P.**

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INTRODUCTION

Cities are the index of economic development of a region. Initially urban areas were generated through internal forces rather than through secondary diffusion. Even the largest cities were small and few by modern standards but in present global scenario, many of modern cities are experiencing explosive urban growth. Haphazard settlement is continuously igniting multi-faced environmental problems which are becoming more novel.

Lucknow City, which is one of the fastest growing Metropolitan regions in the state of Uttar Pradesh. Last decade this city of 'Nawabs' has witnessed growth, dynamism and economic boom which has lead to numerous environmental scenes therefore delimitation of Lucknow City has become more difficult. Due to increasing urban sprawl, drastic landuse change is taking in its 'RUF' (rural-urban fringe) which is leading to inadequacy of public amenities and services.

STUDY AREA

Lucknow is a historical city and administrative hub, which still is having some clear impressions of Nawabs of Awadh, the British regime and the post-Independence developments. Nestled on the banks of the Gomti River and covering an area of 2528 sq. km, U.P.'s capital city, LUCKNOW, encompasses the stretch ranging from 26° 31' to 27° 10' North latitude and 80° 30' East longitude. It is centrally placed district in middle Ganga plain, flanked by Barabanki district on the east, Unnao on the west, Raibarelli on the south and Sitapur & Hardoi districts on the north direction respectively. The boundary of the district is not a natural one but seems to have been fixed in keeping view administration convenience. Although it is the second smallest district in area, it is one of the most important districts because it is a seat of Uttar Pradesh Government. [Census 2001]. This city of Nawabs is divided into different blocks, out of these different blocks the Chintah block has been

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Geology and Soil Type

Lucknow city, falls in the central Ganga alluvial plain chiefly forms a part of sai-Gomti sub basin, Hydro-geologically the city as a whole is represented by unconsolidated alluvial sediments, comprising sand of varying grades with kanker and clay and their admixtures, wherein fine grained sand mostly constitutes the aquifers, i.e. groundwater bearing strata. Jal Sansthan provides the existing water supply in the city. The city falls in the central Ganga Plain and lies in the interfuvial belt of Gomti and Sai basins. It has conspicuous natural depression in northeastern part around Janki Puram and Bakshi Ka talab. The general slope of the area is from north and northwest to south and southeast. The highest elevation is 123.5 above mean sea level in the northwest and the lowest 110 msl in the east in flood plain of river Gomti. The whole area of Lucknow may be divided into two geologic units, namely, younger and older alluvium of quaternary age. The younger alluvial plain lies all along the river Gomti and forms a wide flood plain. The older alluvial plain occupies higher elevation than the younger alluvial plain. The alluvium consists of a sand clay and kanker of different proportions.

DATA USED

To perform the study, high resolution data (QUICK BIRD) as downloaded from Google earth, of different dates, viz 2003, 2006, 2009, have been used.

Survey of India Topographical sheets on 1:50000 scale, pertaining to Chinhat block have been used for preparation of base layers such as road network, settlements etc. SRTM data has also been used to have the three dimensional picture of the area.

Other ancillary data as taken from Census department and land use board , has also been incorporated in the study to get a meaningful result.

WHAT IS REMOTE SENSING ?

Remote Sensing is the acquisition and interpretation of spectral measurements made at a distant place to obtain information about the earth's surface. In a simple sense, human sense organs are virtually organic forms of remote sensing. When we see an object, our eyes are the sensor and an image is formed on the retina, consisting of detectors, which record visible radiation by its connection with the brain. The brain in turn acts as a centre of Pattern recognition, object is then identified and information about the object is obtained. Our sense organs always receive information by means of a carrier, e.g. light (EM radiation) to see; sound waves to hear; molecules to smell, and thermal infrared radiation to feel.

WHY REMOTE SENSING ?

No other tool may be helpful in having the assessment of change detection of an area, except Remote Sensing .. Remote Sensing has several advantages over conventional information gathering tools and techniques, which are used for land observation. The most important of these are :

Possibility of observing beyond the visible range of the EM spectrum; hence invisible becomes visible. Measurable observations possible, which help to acquire quantitative as well as qualitative data. Planimetric measurements possible, so that position related information are obtainable. Flexibility of several observation techniques and image processing algorithm. Data can be permanently recorded and reproduced at any time.

Selectivity of measurements in terms of viewing angle and viewing distance is possible. Synoptic coverage of a large area helps in getting coherence and limits of the components of the region as a whole. Area information is obtainable in comparison with traditional way of point-wise sampling of earth surface. Large area information is obtained in a very short time. In conventional mapping, it is not possible. Dynamic measurement possible which helps in monitoring change. Data obtainable from remote and inaccessible area.

Above and all the , spatial resolution, also plays an important role while selecting the satellite data. A high resolution satellite data would be required for detailed studies in a very localized area, whereas selection of satellite data in a regional area is just vice versa.

WHAT IS GIS

Geographical Information System (GIS) is an organised collection of computer hardware, software, geographic data and personnel designed, to efficiently capture, store, update, manipulate, analyses and display all form of geographically referenced information.

GIS does not make maps, although it can create maps at different scale, in different projections and with different colors. A GIS is a analytical tool. The major advantage of a GIS is that it allows you to identify the spatial relationships between map features.

A GIS does not store a map in any conventional sense, nor does it store a particular image or view of a geographical area. Instead, a GIS stores the data from which one can draw a desired view to suit a particular purpose. In short a GIS holds a database. The database concept is central to a GIS. GIS can answer various spatial queries by linking data sets using location as the common key. For any application there are five generic questions that a sophisticated GIS can answer.

METHODOLOGY

The conventional methodology has been adopted in view of assessing the changes in the landuse and land cover. The Survey of India topographical sheets surveyed in 1962 on 1:50,000 scale and multi date, multi sensor satellite data, pertaining to the study area have been used, Then after the base maps viz. transport, drainage and settlement maps were prepared for each of the SOI sheets for further detailed mapping.

After the preparation of base maps, contour maps at 1m. interval was prepared using SOI toposheets, and SRTM data for assessing the terrain characteristics in the form of relief,. A GIS based analysis on GRID/TIN module was accomplished in order to derive the desired classes.

After preparation of these terrain characteristics maps, all the base layers when coupled with the already existing land use maps, gives the information of different time periods for the changes, occurred. The statistics related to these themes and terrain characteristics were generated, using statistical analysis of the study area.

THE FACTS.....

Lucknow has witnessed a radial growth – greater along the Faizabad Road and the Trans Gomti area. In recent years, the city is witnessing a real estate boom with a large number of private developers entering the market. The latter has not been factored into the Master Plan – the formal basis for Government planning. Estimates of infrastructure requirements and population projections are therefore likely to be conservative. The city has developed mostly towards north and north-east in the Trans-Gomti area; Ravines and water logged area in the north-west and defense land in the south-east have restricted rapid growth of town in these directions. The growth of the town has been along Faizabad Road in the north-east, Kursi Road and Sitapur Road in the north, Kanpur Road in the south and as well as Rae Bareilly Road in the south-east. This is because Lucknow is well linked with Kanpur, Faizabad, Sitapur, Hardoi, Unnao and Barabanki by railway (junction of Broad and Metre Gauge railway lines) and roads (4 National Highways, 3 State Highways)

According to Master Plan 2021, total urban area of Lucknow cover an area of 16,270 hectares in 2004-05. Compared to 1987 when the area was estimated at 9170 hectares, there has been a 77.4% increase in the total area in 2004-05. This is expected to increase to 45,544 hectare by 2021. The area under cultivation is reported to be 1,46,544 hectares constituting 58.1% of total geographical area of the district as against 62.5% in 1981 census. Thus 4.4% decrease in the area under cultivation during 1981-91 is probably due to speedy sprawling and urbanization of the district. The highest increase has been in the residential areas between 1981 to 2001 nearly 99.4%. Trends in land uses has been interesting, especially the fact that residential use has grown dramatically in comparison to all other uses, although there has also been notable growth in commercial, industrial and public service land use.

Since 1981 *84 villages have been merged fully and 6 villages partly within the municipal limit of Municipal Corporation*, Lucknow. The current analysis points to the fact that the growth has happened at a much faster pace than manageable efforts thus degrading the status of infrastructure and services in terms of water supply, sewerage and sanitation, housing drains, storm water drains, solid waste management and transport. Overall service levels are inadequate and the situation is worse for the urban poor. The service sector forms the main economic base of the city. Lucknow is also an important education centre, especially for

primary and secondary education and houses a number of research and development institutions. The state of infrastructure is one of several constraints that prevent the city from achieving its economic potential.(CDP:2006). The total Municipal area as per 2001 census is 143 sq.km.

Table 1: Existing Land use - Lucknow city area (in Hectares) 1987 - 2004-05

Land use	1987		2004-05		Growth in %
	Growth	Percentage	Land use	Area %	Area %
Residential	4,485.98	48.92	8,945.00	54.98	99.40
Commercial	223.77	2.44	360.00	2.21	60.88
Offices	474.69	5.18	560.00	3.44	17.97
Industrial	596.22	6.50	990.00	6.08	66.05
Parks/Playgrounds	346.48	3.78	435.00	2.67	25.55
Public Services	902.02	9.84	1,410.00	8.67	56.32
Traffic	952.00	10.38	1,240.00	7.62	30.25
River/water bodies	193.66	2.11	310.00	1.91	60.07
Open Land	996.14	10.86	2,020.00	12.42	102.78
Total	9,170.96	100.00	16,270.00	100	77.43

Source: Master Plan 2021. Area other than cantonment.

ANALYSIS AND RESULTS

From temporal assessment of high resolution satellite data , between 2003 to 2009 , an importance of remotely sensed high resolution imageries and GIS techniques in assessing is proven , where one can notice the changes occurring in the surrounding environment near *Rahmanpur, Simra, Utar dhana & Shahpur* villages of Chinhat block along Faizabad road.



It is well-known fact that in Lucknow city, a maximum urbanization growth has taken along the Faizabad road only. The settlement of the

urban people into the surrounding areas and location of economic activities like factories, amusement parks, commercial complexes, educational institutes etc gradually brings about a developmental change in the landuse pattern in the rural areas that makes difficult to separate the urban area from rural one and forms a transition



zone.

In order to have integrated functional as well as social segregation of landuse, authorities and planners should adopt holistic approach for 'Greenfield Site'. An usage of high resolution satellite data helps a lot in deciphering the intermixed zones between rural and urban parts. On the one hand this technology gives the real time picture, similarly on the other hand, a cost effective and unbiased approach increases the value of information.

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**A QUEST FOR DEVELOPING AGRO-
PROCESSING CENTRES IN RURAL-URBAN
FRINGE AREAS : A KEY FOR SUSTAINABLE DEVELOPMENT
AND PROPELLING RURAL PROSPERITY**

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A Quest for Developing Agro-Processing Centers in Rural-Urban Fringe Areas

- A Key for Sustainable Development and Propelling Rural Prosperity

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Abstract

Of the India's more than one billion people, about 68 per cent are directly or indirectly dependent on agriculture for their livelihood. Economic prosperity of a developing country like India depends on effective and meaningful integration of agriculture and industry. In the present scenario agro-enterprises constitute the backbone of the economy because it incorporates the diverse commercial activities by using better combination of raw materials, labour, capital and technology.

Agro-processing is an employment intensive sector which is gainful to the people living in urban catchment areas rather than the areas marked with low level of entrepreneurial urge, which hinders the activities due to the constraints of finance, assured market and proper training on technology. On the ground of sustainability, there is wide diversity in agro-climatic conditions in India which permits the production of a wide range of agro-produce, thus, catalyzing a fast growth of agro-processing activities.

The present paper highlights the prospects of developing agro-processing centers for sustainable development and saving the livelihoods in the rural-urban fringe areas. It is a better tool for propelling prosperity in rural areas because such activities are fruitful as they ensure the availability of raw material and labour. While, the nearby urban centre helps in providing new technologies, innovations, skilled human resource, and also act as a market for the finished goods. Therefore, agro-enterprises have become valuable tool for bringing out harmoniously balanced and integrated socio-economic order between rural and urban economies in India.

Key Words: Agro-enterprises, Agro-processing, Rural-Urban fringe, Urban- Catchment, Sustainable development, Rural prosperity.

Introduction

In the present state of affairs agro-processing enterprises constitute a pivotal position in the economy of India because it incorporate diverse commercial activities by using better unification of labour, materials, capital and technologies. But, this sector is still in infancy. Agricultural development is crucial to India's overall progress and this can be achieved by intensifying agricultural and allied activities through diversification and commercialization of agriculture. A strong and effective agro-processing sector plays a significant role in diversification of agricultural activity, improving value addition of the produce, ensuring employment generation



and creates surplus for export. India ranks first in the production of milk, second in fruits and vegetables, third in fisheries, fourth in poultry and fifth in meat production. Besides it is also the world's largest producer of spices, dry fruits, tea, rubber and honey. But, the constriction is that only 2% of the farm produce goes to processing sector and 30 to 40 % is recorded as post-harvest losses every year. Beyond this, there is a little share in world trade (less than 1%), low capacity utilization (less than 50%), low value addition (about 7%), high cost of production, inadequate infrastructure and poor quality are weaknesses of India's agro-processing sector (Ministry of Food Processing Industries, Annual Report 2008, Government of India). In this regard the government urges to develop the food processing sector in a comprehensive manner to provide self employment opportunities and livelihood security to women, unemployed youths and under-employed farmers. Such ventures are planned to ensure livelihood security and rural prosperity through sustainable habitat utilization.

Thus, agro-enterprises have become valuable in bringing out harmoniously balanced and integrated socio-economic order between rural and urban economies. The economic development on sustainable basis that takes into account natural resources, environment and human health as the priority areas are the driving forces for establishing the agro-enterprises in the rural-urban fringe areas. Such ventures are planned to ensure the availability of raw material and labour. While, the nearby urban centre helps in providing new innovative technologies, skills and market exposure.

Rural-Urban Fringe Areas

The rural-urban fringe can be described as the 'hinterland between town and country' or alternatively, as the transition zone where urban and rural uses mix and often clash. Its definition shifts depending on the global location, but typically are intensively managed to prevent urban sprawl and protect rural areas. Therefore, rural-urban fringe is a continuous area that starts beyond the urban limits of cities. According to **Herington (1984)**, "rural-urban fringe is an area with distinctive characteristics, which is only partly assimilated into the growing urban complex, which is still partly rural and where many of the residents live in the countryside but, are not socially and economically of it".

Agro Processing Centres

Agro-Processing Centre is an establishment, where required facilities for processing, storage, drying of cereals, pulses, oilseeds, spices, fruits and vegetables are available. Processed and Packaged food products are prepared and marketed with specific brand name (Kumar and Ilyas).

2003). The entrepreneurship of Agro-Processing Centre may be of an individual, community, cooperative or voluntary organization. The Agro-Processing Centre creates additional value to a product so as to increase marketability of surplus produce available in the village, cluster of villages or surrounding area (Singh, et al., 2007).

Agro-Processing Activities

The foremost principle of Agro-Processing is 'the transformation of raw agricultural stuffs (i.e. plant's and animal's produce) into tastier, nutritious, safe, and value added products'. Agro-processing implies all the steps taken for the preparation of harvested agriculture produce for marketing, such as, handling, drying, shelling, cleaning, polishing, grading, treating and packaging. The processing activities encompass the methods of curing, grinding, pasteurization, preservation (sugar, salt, oil and spices, acids and chemicals), fermentation, aseptic packaging, irradiation and freezing. Today a wide variety of processing methods and combination of modern technologies of distribution, and marketing networks have made seasonal crops possible to be available round the year and all over the world.

Government Emphasize India's Stand for Second Green Revolution through Agro-Processing

The Prime Minister of India **Dr. Manmohan Singh** during his address at **Global Agro Industries Forum (8-11 April 2008, New Delhi)** has charged and rejoice the agro-processing sector with the intentions that, "It is our sincere desire and effort to take Indian agriculture to a new level of knowledge-based development; a development that is inclusive, a development that is equitable, a development that is environmentally sustainable and a development that is regionally balanced. It is our goal to ensure both livelihood security and food security for all our people, paying particular attention to the needs of small and marginal farmers. We need a Second Green Revolution. We need new technologies, new organizational structures, new institutional responses and, above all, a new compact between farmers, technologists, scientists, administrators, businessmen, bankers and consumers. I would like to see greater and wider engagement, especially in providing long-term solutions to the problems faced by small and marginal farmers, particularly for poverty alleviation, for risk mitigation and access to finance. For promoting agri-business and agro-industries, we need a model that can combine the economics of small farms with the economics of mass production and modern marketing. We in India wish to promote agro-industries and offer people living in rural areas new avenues of employment close to the place they work and

live. We need much greater global and national effort to increase investment in rural areas in agriculture and agricultural technologies, in farm and off-farm economic activities. I hope we can all work together to make this possible."

Research Needed and Importance of Agro-Processing in Fringe Area

The study argues to establish agro-processing centres in the rural-urban fringe areas for economic integration of the rural and urban economies, and to open new avenues of employment for the fringe dwellers close to the place where they live, this will help to minimize the pressure on urban centres. The functions of cities also incorporate in shaping the agricultural and food policies related with production and marketing. In India, there has been a trend towards the formation of large metropolis or urban agglomerations. The development of such cities has accompanied the consolidation and concentration of agro-

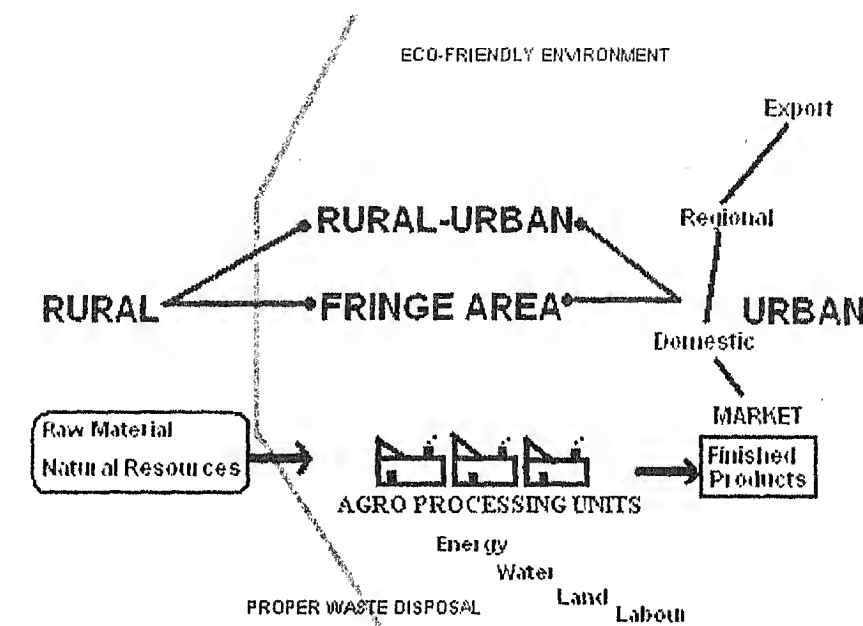


Fig. 1 A Model Showing Synergy Between Urban and Rural through Agro-Processing Activities in the Rural-Urban Fringe.

processing industries in rural-urban fringe areas rather than the far away remotely located rural ones. The post-harvest and agro-industrial developments in general are always favoured by urbanization.

Agricultural products like fruits, vegetables, cash crops, dairy and poultry products etc. are most profitably produced in the fringe areas of the urban centers. Processing of farm produce can also play an important role in the conservation of farming systems and effective utilization of the produce. This adjustment may enhance the growth of agro-processing centres in the nearby fringe areas (Fig.1), based on the available resources and agricultural situation of the fringes. Such clustering of agro-processing centres can provide research applications required for sustainable planning and development.

Implications of the Study

The Rural-urban fringe area plays a key role in feeding the people residing in urban areas while acting as a play ground for the rural areas. In almost all the developing nations including India, rural areas are the centers of cultivation and agricultural production, while the urban as consumers. The conversion of raw agricultural produce into edible and or marketable products takes place often in the rural-urban fringe areas which has equal access to the raw material and the urban markets. In this process of adding the value to raw agricultural produce, the rural-urban fringe areas play a prime role. The growing demand for processed and semi-processed agricultural products accompanied by a rapid transformation of the traditional marketing system into more diversified system of retailing through supermarkets have created the urges of concentrating food industries in the nearest possible locations.

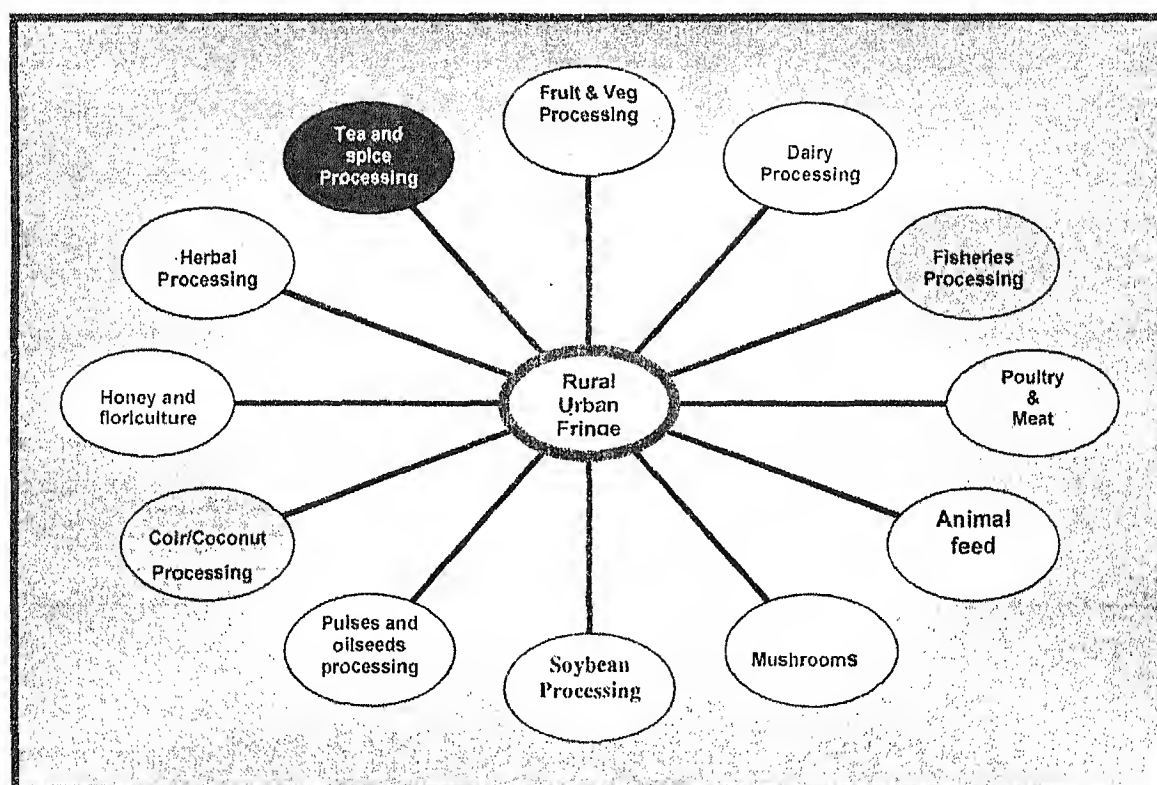


Fig. 2 Major Agro-Processing Activities for Rural-Urban Fringe Areas of India.

Table. 1 Sustainable Agro-Processing Activity in Rural-Urban Fringe of Major Cities in Different Agro-Climatic Regions of India.

Ahmedabad	↑	↑	↑	↑	↑		↑		↑						
Surat	↑	↑	↑	↑	↑		↑	↑	↑		↑				
Vadodra	↑	↑	↑	↑	↑		↑								
Daman & Diu							↑	↑							
Mumbai	↑		↑	↑	↑		↑	↑					↑		↑
Pune			↑	↑			↑				↑				↑
Nagpur	↑	↑	↑		↑	↑	↑				↑				
Ratnagiri			↑					↑		↑	↑				↑
Vishakhapatnam							↑	↑					↑	↑	
Hyderabad	↑	↑	↑	↑	↑		↑					↑			
Panaji			↑					↑					↑		↑
Bangalore	↑	↑	↑		↑					↑	↑	↑		↑	↑
Mysore			↑						↑	↑	↑	↑			↑
Mangalore					↑			↑		↑		↑	↑		
Pondicherry								↑					↑		↑
Salem	↑	↑	↑	↑	↑	↑	↑			↑	↑	↑	↑		↑
Coimbatore	↑	↑	↑	↑					↑	↑	↑	↑		↑	↑
Madurai			↑			↑	↑		↑	↑	↑	↑		↑	↑
Calicut			↑		↑			↑		↑		↑	↑		↑
Idduki			↑						↑	↑		↑	↑		↑
Ernakulam	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑		↑	↑		↑
Trivandrum	↑		↑					↑		↑		↑			↑
Andman&Nico								↑		↑		↑	↑		↑

(Based on the information from Statistical Data Book for Agricultural Research and Development in SAARC Countries, and Ministry of Food Processing, Government of India.)

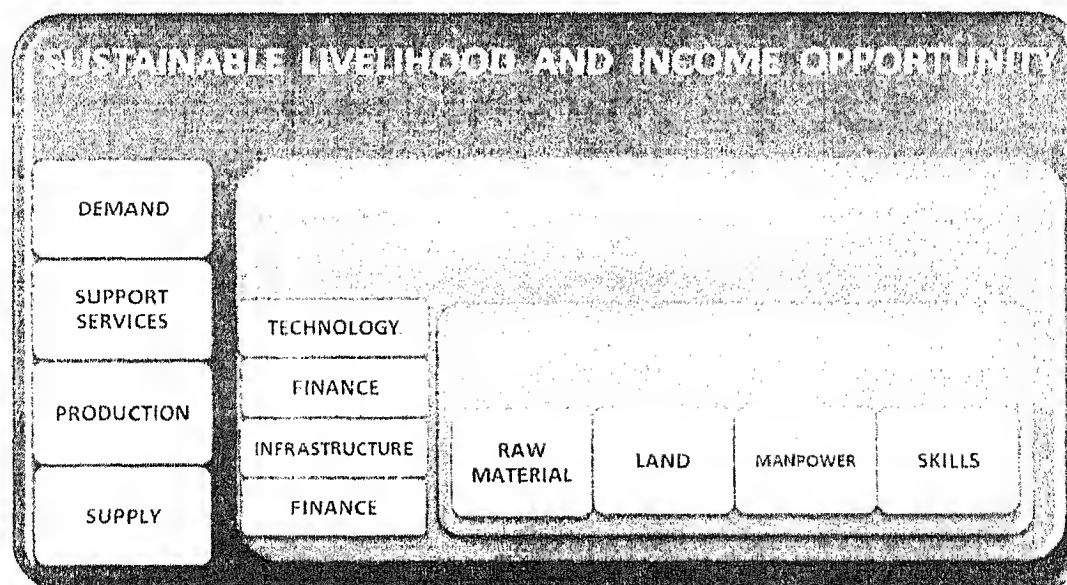


Fig. 3 Multispectral Model for Potential Agro-Processing Centre.

Urbanization affects all sectors of the food system. As the urban population increases more and more food is needed and that has to be transported and distributed. Therefore, an easy accessibility to the fringe areas is also another advantage for developing agro-industries. The developments in the post-harvest sector over the past decade and modifications attempted in marketing, processing and distribution systems ensure the availability of food in urban areas. Thus, the agriculture of urban fringe areas become more market oriented, that fills the food diversity gap and generating employment opportunities for the fringe dwellers.

Today more and more people live in and around cities than in rural areas. Educated youth are migrating from rural areas to the urban centres, especially in the fringe areas, in search of employment. This has resulted in urban sprawl i.e. the emergence of rural-urban fringes. Introducing agro-processing ventures (**Table. 1**), in rural urban-fringes, resulted in value addition and processing, that provide regular source of income directly and indirectly at the place of living. People, who are engaged in procurement, processing and marketing of the agriculture produce, will directly benefited by this sector. Farmers and the weaker section of the society, especially women who are under employed or unemployed, will try to increase their income and farm productivity. This adjustment may stimulate the growth of agro-processing sector according to the availability of resources and agricultural situation of a region/area (**Fig.2**).

Recommendations

- ❖ The foremost upshot is to establish 'Fringe Area Development Authorities (FADA)' for each rural-urban fringe.
- ❖ Micro level planning for effective development of rural-urban fringes through agro-processing sectors.
- ❖ Location: land and land development, financial credits, infrastructure, market (domestic and export), and increasing awareness.
- ❖ Empowerment of rural masses through promotion of agro-processing activities.
- ❖ Encouraging group entrepreneurs for small Agro-Processing Centres at village level.
- ❖ Establishing the facilitation centres at least one in each urban-fringe area for helping farmers and processors in all sorts of knowledge.
- ❖ Farming systems that are ecologically and economically sustainable for a particular fringe (as shown in **table. 1**).

- ❖ Application of the proposed 'Multispectral Model for developing sustainable Agro-Processing Enterprise' (as shown in Fig. 3).
- ❖ Easy and quick transportation and storage facilities in the fringe areas.

Conclusion

The present study begins with the question: Can Agro-Processing centres be located in the rural-urban fringe areas?, unleash the synergy between the environmental, agricultural and economic development. The analysis of internal working and external environment of the centres affirms the answer in positive. However, these centres are at different levels of development and have assorted ability of contribution to sustainable development. The agro-processing centres can and do contribute for preserving the local agricultural systems and economic development, and also the sustainable environment in the rural-urban fringe areas.

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**RURAL-URBAN FRINGE AND SOCIO-
ECONOMIC STRUCTURAL ANALYSIS OF
VEGETABLE TRADERS : A CASE STUDY OF
UTTAR PRADESH**

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Rural-urban Fringe and Socio-Economic Structural Analysis of Vegetable Traders: A Case Study of Uttar Pradesh

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Vegetables are the chief products of traded crops in daily and periodic markets because of their freshness and perishable nature, which discourage the long distance for the transaction. The vegetable traders usually transact these perishable commodities in surroundings the production region in the city as well as its fringe areas. Marginal and small farmers dispose the vegetables at remunerative prices bear urban reflection on the physical, occupational and demographic characteristics, and enjoy the urban services. But at grass roots level, their means of livelihood and socio-economic conditions are not satisfactory. The paper makes analysis on the type of vegetable traders, their travel behaviour, size of land holdings, income, education, age, sex, marital status, caste, housing conditions, and basic amenities as well as suggestions for improving their socio-economic conditions.

Keywords: Rural-urban fringe, society, caste, basic amenities, vegetable, traders.

The outward expansion of urban centres along with their peripheries is a typical phenomenon of urban landscape generally in developing countries and particularly in India. The fringe zone provides the fresh vegetables, cereals, and greeneries to a city and has adjustments in between rural and urban ways of life. Vegetables are important ingredient of diets in urban areas due to nutritional and therapeutic values. The marketing of fresh vegetables has a significant role to enhance their production and consumption for growing urban population that provides ample opportunities for the growers to earn better returns per unit area of land. Moreover, the vegetables are mainly grown on outer limits of a city by farmers who have strong interaction with parent city. That is why vegetable producers/traders of the fringe areas bear urban reflection on the physical, occupational and demographic characteristics. By and large, they enjoy the urban services but at grass roots their livelihood level and socio-economic conditions are not satisfactory which is the subject for research (Dixit 1984, Jean-Joseph et al 2003, AERC 2005, Ali and Khan 2007).

Objectives

Keeping view the importance of socio-economic conditions of vegetable sellers, the study has following objectives-

- 1) To understand their size of land holdings, income, mobility and literacy of the vegetable traders of rural-urban fringe.
- 2) To analyze age, gender and caste structure of vegetable traders and distribution of basic amenities among them.

Data and Methodology

The work is based on the primary sources of data. They were collected through field surveys from villages and the outer settlements which were situated 3, 5, and 7 km from the centre of Shahjahanpur city in 2006-07. On the basis of random sampling method, 6 villages and 4 outer urban wards were selected where 50 per cent households of vegetable producers/traders were sampled for detailed study. Direct questionnaire method was used to collect information from the respondents pertaining to their socio-economic characteristics. The collected data were analyzed with simple statistical and geographical techniques.

Study Area

Rural-urban fringe of Shahjahanpur city has been selected as a study area. It is situated in the tract between the Ganga and foothills of the Himalayas in Uttar Pradesh. The major section of population of rural-urban is engaged in agricultural, service as well as trading activities and more or less dependent on selling and purchasing of agricultural and non-agricultural commodities, especially perishable goods and livestock. Such type of transactional activities provides employment to workers of unorganized sector and their source of livelihood. Population of Shahjahanpur urban centre and its urban areas, railways

settlements Rosa Shahjahanpur municipal board and contentment board is 6.29 lakh and total population of the district is 25.7 lakh. The literacy of the district is 48.79 per cent, and among urban and rural population, it is 60.53 per cent and 47.16 per cent.

Results and Discussion

Vegetables are the main products of transacted crops in daily and periodic markets because of their freshness and perishable nature, which discourage the long distance for the transaction. The traders usually transact these perishable commodities in 2-9 kilometres radius around their production region. Due to high demand and easily reachable markets of the city as well as its fringe areas, marginal and small holders produce the vegetables. They dispose of these perishable surpluses (vegetables) at remunerative prices because of ever increasing dietary requirements in urban areas (Mukherjee and Jayaswal 2006). Commonly the study region is backward in context of storing, freezing, and transporting facilities at grass roots level. Therefore, the adjoining areas of city are considered as ideal centers for the transaction of Potato, Colocasia, Cabbage, Cauliflower, Brinjal, Tomato, Onion, Garlic, Peas, Green beans, Bitter gourd, Bottle gourd, Lady's finger, Pumpkin, Jackfruit, Radish, Carrot, Green chilli, and Lemon etc.

Producer and Non-Producer Traders

Table 1 shows that the average participation of crop non-producer sellers (77.48 per cent) is in selected rural-urban fringe. It is due to prevailing unemployment and under employment in the study area. The 3/4th of workforce of the study area is engaged in agricultural activities and a lion's share of them is marginal workers (land less and casual labourers). They trade vegetables for their livelihood and supplement for income to sustain their lives.

Their proportion varies from 72.64 per cent in ward of Reti to 80.77 per cent in village of Mishripur. The highest participation of non-producer sellers (80.77 per cent) lies in Mishripur where they purchase these marketable commodities from the regulated markets or producers from the fringe areas of the city and sell in the markets of 10.7 km radius (Ali et al 2007).

Table1
Proportion of Producer and Non-Producer Vegetable Traders in
Fringe Areas of Shahjahanpur, 2005-06

S.No.	Villages/Wards	Producer Sellers	Non-Producer Sellers
1	Shahwaznagar	23.27	76.73
2	Chinnaur	22.57	77.43
3	Hatauda	24.86	75.14
4	Shahbad	19.23	80.77
5	Akkarra	20.49	79.51
6	Mauzampur	22.82	77.18
7	Aziz ganj	21.74	78.26
8	Haddaf	22.56	77.44
9	Yeman Zai	20.31	79.69
10	Reti	27.36	72.64
Total		22.52	77.48

Source: Field surveys, 2005-06

It is due to mostly vegetables are cultivated in the nearest concentric zone of town/city (Thunen 1886). Urban sellers carry vegetables from there as well as different parts of the district and adjacent regions. Unemployment and underemployment are main push factors in the rural urban fringes to force their residents to trade vegetables for earning the livelihood and supplement to their income (Verma et al 1999). However, it has been noted during the field investigations that the non-producer traders visit to the markets that are held along the roads for purchasing and selling the vegetables.

Holding-wise Vegetable Traders

The study has reveals that nearly 20 per cent vegetable traders are producers (Table 1). Among them about 64 per cent traders are the marginal and small farmers who have less than 1 ha land holdings. It is followed by small holders (27.24 per cent), semi-medium (7.67 per cent) and medium as well as big farmers 1.57 per cent. Table 2 highlights the facts that out of villages/wards, no producers belong to medium and big farmer category.

Table2
Holding wise Proportion of Vegetable Producer Traders in Fringe Areas of Shahjahanpur, 2005-06

Villages/wards	Marginal Farmers (Below 1 ha)	Small Farmers 1-2ha	Semi-medium Farmers 2-4ha	medium & Big Farmers above 4
Shahwaznagar	68.85	22.95	4.92	3.28
Chinnaur	66.67	22.22	6.66	4.45
Hatauda	52.83	30.19	13.21	3.77
Shahbad	63.16	26.32	10.52	0.00
Akkarra	70.00	25.00	5.00	0.00
Mauzampur	72.23	26.27	1.50	0.00
Aziz ganj	59.16	30.32	10.52	0.00
Haddaf	66.67	25.00	8.33	0.00
YemanZai	61.54	30.77	7.69	0.00
Reti	54.17	33.33	8.33	4.17
Total	63.53	27.24	7.67	1.57

Source: Field surveys, 2005-06

The share marginal and small farmers 84 per cent describes that cultivation of vegetables and their marketing have been main source for income of marginal and small farmers in the peri-urban region. That is why FAO has accepted that vegetable farming is considered as a next revolution in agriculture after green revolution for the food and nutritional security. It is boon for these farmers because increasing population reduces size of landholdings (FAO 1999).

Mobility of Vegetable Traders

The mobility for trade is an important factor for the development of a country or region (Khan and Qureshi 2004). It has been recorded during the field surveys that the vegetable traders of rural-urban fringe move nearly 10 km for the selling and purchasing of the vegetables. The perishable nature of the commodities and lack of refrigerating facilities, so generally it happens to limited distance for selling and purchasing local vegetables. The average mobility of vegetable traders is not homogenous and varies from 3.65 km to 12.43 km (Table 3). The traders of Shahwasnagar are more mobile (12.43 km) than that of the others. It is because they visit the periodic markets of fringe and remote areas for the marketing of vegetables.

Table 3
Travel Behaviour of Vegetable Traders in Fringe Areas of Shahjahanpur,
2005-06

S.No.	Villages/wards	Mobility (Km)
1	Shahwaznagar	12.43
2	Chinnaur	11.83
3	Hatauda	7.57
4	Shahbad	10.70
5	Akkarra	12.36
6	Mauzampur	11.30
7	Aziz ganj	5.64
8	Haddaf	8.63
9	YemanZai	10.15
10	Reti	3.65
Total		9.43

Source: Field surveys, 2005-06

Income Level of Vegetable Traders

Table 4 shows that at least 18.49 per cent vegetable traders earn below Rs. 3000 per month. The income of the traders depends upon their input cost or investment in the vegetable trade, size of land holdings, mobility of the traders, and demand of vegetables (Amani and

Khan 1993). Average 65.84 per cent vegetable traders earn between Rs.3000-6000 per month and 15.68 per cent traders make earning more than Rs. 6000 per month.

Higher proportion of the traders nearly 85 per cent lies in the category who earn Rs. 6000 per month shows that the vegetable business provide not a very good earning but it engage them and provide the employment the to casual, land less labourers as well as marginal farmers over the year.

Table 4
Income Level of Vegetable Traders in Fringe Areas of Shahjahanpur,
2005-06

S.No.	Villages/wards	Below 3000	3000-6000	Above 6000
1	Shahwaznagar	17.00	61.57	21.43
2	Chinnaur	32.57	51.71	15.71
3	Hatauda	17.86	69.29	12.86
4	Shahbad	15.71	70.65	13.63
5	Akkarra	17.00	70.00	13.00
6	Mauzampur	18.57	72.57	8.86
7	Aziz ganj	17.14	54.29	28.57
8	Haddaf	11.43	78.57	10.00
9	YemanZai	21.43	65.00	13.57
10	Reti	16.14	64.71	19.14
Total		18.49	65.84	15.68

Source: Field surveys, 2005-06

Literacy Level of Vegetable Traders

Literacy level is an important index of socio-cultural advancement and economic transformation of a society. The literacy of the vegetable is higher (71.13 per cent) than the district average (63.4 per cent). At least 29 per cent vegetable traders are under primary and got education below 5 standard classes (Table 5). It is followed by 20.9 per cent primary, 12.65 middle (8 standard classes) and 9.69 per cent secondary and above. It shows that the higher proportion of the traders belong either illiterate or lower grade of the education. It is

because the study region is socio-economically backward and people like to do earning for the bringing up the family and themselves than the getting of the higher education (Ali, 2009).

Table 5
Literacy Level of Vegetable Traders in Fringe Areas of Shahjahanpur,
2005-06

S.No.	Villages/wards	Illiterate	Under Primary	Primary	Middle	High School+
1	Shahwaznagar	37.14	32.15	12.54	10.81	7.36
2	Chinnaur	22.47	29.52	19.47	14.87	13.67
3	Hatauda	26.67	28.46	18.43	15.79	10.65
4	Shahbad	30.75	24.39	22.03	12.88	9.95
5	Akkarra	35.71	21.07	27.14	12.51	3.57
6	Mauzampur	36.67	20.00	23.33	10.00	10.00
7	Aziz ganj	19.23	34.62	19.23	15.38	11.54
8	Haddaf	24.29	31.26	20.09	13.16	11.20
9	YemanZai	33.33	33.33	15.38	10.00	7.96
10	Reti	22.46	32.14	23.26	11.11	11.03
Total		28.87	28.69	20.09	12.65	9.69

Source: Field surveys, 2005-06

Age Structure of Vegetable Traders

Table 6 illustrates that working age group of the traders 15-59 years (77.42 per cent) are dominated in the trading of the vegetables in rural-urban fringe. It is followed by the senile above 60 years (14.56 per cent) and juvenile population 0-14 years (8.02 per cent) respectively. The involvement of the senile and child population in the trading of vegetables is an index of rural-urban fringe that indicate the livelihood compels them to trade the vegetables for the supplement of the family income and to sustain their lives (Teltscher 1994, Haque1996). The highest participation of the child and old traders in the transaction of vegetables has been recorded nearly 10 per cent and 18 per cent in the ward of Kakara. It is due to high concentration of other back ward castes of Muslim community. They are engaged in this profession throughout year for *Rozi* and *Roti* (employment and Income).

Table 6
Age Structure of Vegetable Traders in Fringe Areas of
Shahjahanpur, 2005-06

S.No.	Villages/wards	0-14 years	15-59 years	60+ years
1	Shahwaznagar	7.44	77.15	15.41
2	Chinnaur	9.71	78.47	11.82
3	Hatauda	8.33	77.97	13.70
4	Shahbad	9.09	80.45	10.46
5	Akkarra	8.21	79.73	12.06
6	Mauzampur	6.23	79.68	14.09
7	Aziz ganj	5.97	77.42	16.61
8	Haddaf	9.86	72.62	17.52
9	Yeman Zai	5.81	77.74	16.45
10	Reti	9.53	73.01	17.46
Total		8.02	77.42	14.56

Source: Field surveys, 2005-06

Gender Structure of Vegetable Traders

The vegetable cultivation is a revolution in agriculture after green revolution because increasing population reduces size of holding and it can employ the farmers, especially women round the year for production and process of vegetable marketing for earning cash. It has been noted during the field surveys that about 9 per cent women were engaged in this job in the urban and peri-urban areas (Table 7). However, this proportion is tiny in comparison of the male traders. Yet, it is the trade of vegetables that shows the participation of women in the tertiary economic sector otherwise their participation was absent from the business class in the selected rural-urban fringe (Momesen and Townsend 1987, Dixit 1999, Hapke 2001).

The highest participation of women (12.33 per cent) lies in Reti. This village is situated near the district regulated market (rosa) as well as daily market also exists in the village along the road where the women participate actively in the transaction of vegetables.

Table 7
Proportion of Male and Female of Vegetable Traders in Fringe
Areas of Shahjahanpur, 2005-06

S.No.	Villages/wards	Male	Female
1	Shahwaznagar	90.48	9.52
2	Chinnaur	92.66	7.34
3	Hatauda	90.78	9.22
4	Shahbad	89.86	10.14
5	Akkarra	87.78	12.22
6	Mauzampur	90.17	9.83
7	Aziz ganj	91.19	8.81
8	Haddaf	96.06	3.94
9	Yeman Zai	95.15	4.85
10	Reti	87.67	12.33
Total		91.18	8.82

Source: Field surveys, 2005-06

Marital Status of Vegetable Traders

Table 8 highlights that 76 per cent vegetables traders are married. It is followed by 20.65 per cent unmarried and 3.34 per cent widow/separate. The married life is accepted as a life of responsibility and the urban when the persons are married they have needed the money for sustenance of their family life smoothly.

Table 8
Marital Status of Vegetable Traders in Fringe Areas of Shahjahanpur, 2005-06

S.No.	Villages/wards	Married	Single	Separate/Married
1	Shahwaznagar	70.86	25.02	4.12
2	Chinnaur	74.44	21.68	3.88
3	Hatauda	72.14	24.95	2.91
4	Shahbad	75.19	21.30	3.51
5	Akkarra	84.33	13.76	1.91
6	Mauzampur	75.67	22.00	2.33
7	Aziz ganj	71.57	26.27	2.16
8	Haddaf	74.26	22.17	3.57
9	Yeman Zai	81.23	14.62	4.15
10	Reti	80.44	14.70	4.86

Total	76.01	20.65	3.34
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Source: Field surveys, 2005-06

At this situation the vegetable transaction is a suitable option for the residents of rural-urban fringe where the poor condition of education and either no land or very tiny size of land holdings is existing. The proportion of the single and separate traders also describes that the vegetables trading is the attractive business at grass roots level in the rural urban fringe (Gosh and Gupta 2005).

Castes wise Participation of Vegetable Traders

The caste system, with its societal stratification and social restrictions continues major impact on the Indian social set. The system generally identified with Hinduism, is also prevalent among Christian, Sikhs, and Muslims. Working castes now known as backward class (BC) and scheduled castes (SC) were always poor and considered at bottom in the Verna system¹ and were kept away from opportunities (Jacob 2009).

Table 9
Castes wise participation of Vegetable Traders in Fringe Areas
of Shahjahanpur, 2005-06

S.No.	Villages/wards	Gen	OBC	Sc
1	Shahwaznagar	19.57	73.77	6.67
2	Chinnaur	10.71	75.00	14.29
3	Hatauda	17.14	75.71	7.14
4	Shahbad	17.14	64.29	18.57
5	Akkarra	8.30	83.57	8.12
6	Mauzampur	11.43	57.14	31.43
7	Aziz ganj	22.86	48.57	28.57
8	Haddaf	10.57	71.43	18.00
9	Yeman Zai	11.43	81.43	7.14
10	Reti	8.57	75.71	15.71

¹ In Verna system was source of present caste hierarchy in India which divided population into four classes, Brahmins, Kshatriyas, Vaishyas, and, Shudras. It was based on the occupation of the people and the complexion of the skin. In this hierarchical order Brahmins were on the top ranking followed by Kshatriyas, Vaishyas, and, Shudras. In due to course of time, it become extremely rigid and high caste people exploit to low caste people.

Total	13.77	70.66	15.56
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Source: Field surveys, 2005-06

Table 9 shows the vegetable traders belong to general, OBC and SC categories in the order of 13.77, 70.66 and 15.56 per cent respectively. Evidently, a high proportion of OBC traders express the fact that the vegetable trading is the main source of the livelihood, especially for socially backward people (*Kachhi, Saini, Kujra* and *Bhatiyara* who are traditionally sellers of vegetables), casual workers, and agricultural labourers. The traders of higher caste are involved in this first one who has medium and big size of land holding they sell vegetables in bulk and second one who is the poor they take this profession as the source of the income for the survival of the lives. Schedule caste people have the proportion nearly 16 per cent in this business. Many of them are the traditionally growers and sellers of the vegetables and many of them compel to do trade for the livelihood and employment as a lucrative business (Srinivas 1994).

Housing Conditions of Vegetable Traders

Table 10 highlights housing conditions of vegetable traders to total traders of the selected fringe. The vegetable traders who live in semi-concrete houses are on top position 58.43 per cent. It is followed by pucca house holders (20.22 per cent), katcha house holders (15.18 per cent) and hut/slum dwellers (6.17 per cent).

Table 10
Housing Conditions of Vegetable Traders in Fringe Areas of Shahjahanpur
2005-06

S.No.	Villages/wards	Pucca	Semi-Pucca	Katcha	Hut/slums
1	Shahwaznagar	22.22	63.89	8.33	5.56
2	Chinnaur	25.00	64.29	7.14	3.57
3	Hatauda	19.57	55.43	15.86	9.14
4	Shahbad	17.14	62.86	11.43	8.57
5	Akkarra	11.43	57.14	24.28	7.15
6	Mauzampur	17.14	42.86	31.43	8.57
7	Aziz ganj	16.86	68.15	12.14	2.85
8	Haddaf	25.71	60.00	11.43	2.86

9	Yeman Zai	20.00	57.14	14.86	8.00
10	Reti	27.14	52.57	14.86	5.43
Total		20.22	58.43	15.18	6.17

Source: Field surveys, 2005-06

The highest share of semi-concrete dwellers among the vegetable traders reflects their poor economic and social conations that these traders have not all season houses. These houses often become causes of causality in the rainy season and disease prone in the transaction of the atmospheric seasons (WHO 2004).

Distribution of Basic Amenities among Vegetable Traders

Table 11 reflects the distribution of basic amenities among the vegetable traders in the selected rural-urban fringe. There is the condition of health facilities provided by the government is very poor, nearly 12 per cent vegetable traders beneficial of these facilities, in spite of the being seasonal prone conditions of their houses. At least 3 per cent traders do not get safe drinking water and about 20 per cent traders do not have any kind of toilet facilities (Park 2002). It has been noted during the field surveys that the mostly available toilet faculties were unhygienic service type.

Table 11
Distribution of Basic Amenities among Vegetable Traders in Fringe
Areas of Shahjahanpur, 2005-06

S.No.	Villages/wards	Safe Drinking water	Toilet	Govt. Health facilities
1	Shahwaznagar	97.14	83.14	8.56
2	Chinnaur	95.71	90.00	14.29
3	Hatauda	94.29	88.33	13.57
4	Shahbad	98.57	89.82	9.71
5	Akkarra	97.14	87.82	11.43
6	Mauzampur	98.57	89.00	12.14
7	Aziz ganj	100.00	96.00	14.29
8	Haddaf	98.89	90.86	12.14
9	YemanZai	98.43	93.73	14.00

10	Reti	98.56	96.67	9.26
	Total	97.73	90.54	11.94

Source: Field surveys, 2005-06

Conclusions

The present study analyses the socio-economic conditions vegetable traders of rural-urban fringe. The non-producer vegetable traders are common in the fringe areas their share is nearly 77 per cent. The share of producer-cum-traders is at least 23 per cent in which more than 84 per cent producers belong to marginal and small farmer categories. It is due to prevailing unemployment and under employment conditions these traders earn money and supplement for their exiting income. As more 85 per cent vegetable traders of rural-urban fringe earn below Rs.6000 per month. The illiteracy and backwardness in education among the vegetable traders are common because the percentages of illiterate and primary as well as under primary are nearly 28 and 48 respectively. The proportion of traders of working age is about 77 per cent but the availability of the children and old person in this profession reflects their poor socio-economic profile. Male traders are in majority marketing of vegetables at least 80 per cent are married. Nearly 90 per cent traders belong to OBC and SC categories because they are traditionally growers and sellers of vegetables. However, they have not only limited-land size holdings for the vegetable farming but also their majority about 80 per cent live in hut/slums, katcha, semi-pucca types of dwellings. At least 3 per cent traders do not get safe drinking water and nearly 20 per cent are far away from any kind of toilet facilities. A chunk of traders (88 per cent) is not under reaches of government health facilities in the selected rural-urban fringe

while the nature and unhygienic environment of their houses always invite many diseases generally and particularly at the transition of the atmospheric seasons.

Moreover, it has been found that vegetables traders face social, economic, infrastructural and institutional difficulties. There is an urgent need to reduce these problems, which will help for socio-economic well-being of vegetable traders, thereby helping in development of rural-urban fringes. Taking into consideration the prevailing conditions of the traders a number of steps should be taken for their betterment. They are as follows:

- 1) A major section of vegetable traders (non producer sellers) belong to marginal, small farmers and labourers of unorganized sectors. So, micro credit facilities should be provided them.
- 2) Vegetables are the perishable nature of the commodities so storing, freezing, and quick and fast transportation facilities should be provided. So that marginal and small holders dispose off their vegetables at remunerative prices.
- 3) Majority of the farmers in the study area operate small farm units and produce only small marketed surpluses that require marketing facilities at nearby places.
- 4) Cooperative marketing system should also be started and government and private purchase centres (formal agencies) should be set up in rural-urban fringe. They should have linkages among the each level in the hierarchy of market yards with telephone, fax and internet facilities, and allowing electronic trade.
- 5) To provide proper health services, all seasons pucca houses and to develop awareness among them about the health and education. Because without proper basic amenities and awareness, infectious diseases can't be defeated.

The agro-based industries should be established in rural-urban fringe areas. It will increase the price of commodities and provide job for the people of surrounding areas directly and indirectly to promote the production for raw material.

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**TRADEOFF BETWEEN DEVELOPMENT AND
AGRICULTURE RELATED LAND USE AT URBAN
FRINGES : A QUEST FOR COMPATIBILITY**

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Tradeoff between development and agriculture related land use at urban fringes: A quest for compatibility

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Tradeoff between development and agriculture related land use at urban fringes: A quest for compatibility

Introduction

In view of rapid changes in urban tastes and preferences for specific accommodation and infrastructure facilities as well as spread of the culture of consumerism there has been a recent trend worldwide for industrial expansion and real estate development along the urban fringes (lands located around developed areas of the city but still within municipal limits). It has been found that the owners of industries or real estate developers generally prefer fringe area of cities/towns to take advantage of easy transport of necessary inputs and delivery of finished products through the network of transport connection as well as some open and spacious area that these places are blessed with. The fringe areas usually border with a rural ambience which may or may not be inhabited by a rather sizable population people depending on the texture, quality and productivity of the soil and adjacent terrain.

Urban development focusing on residential, commercial and industrial development and agricultural expansion create competing demands on a limited land base in the urban fringe. Apart from competing land requirements, the different user groups often get locked into conflict unless their hopes and desires are not properly addressed to in planned negotiation. For instance, urban and country-residential dwellers have particular expectations about access to efficient transportation infrastructure, services and amenities, and limited exposure to agricultural odors and sounds. Farmers, on the other hand, require relatively unimpeded access to fertile lands, water for irrigation, supplies and materials, roads they can drive heavy machinery on, and protection from nuisance claims from non-agricultural neighbours. Broadly the farmers practicing agriculture in urban fringes may be exposed to the following types of conflicts regarding their operation

Right-to-farm issues - Many farmers on the urban fringe feel that they are ill represented in municipal governance as they are overshadowed, politically, by larger number of other land users who are not squarely aware of the needs and requirements for a sustainable and competitive farming industry

Expanding urban populations and land speculation – Burgeoning growth in urban population creates pressure on increased housing and infrastructure needs as well as diversification and proliferation of industrial base in order to cater to the culture of urban consumerism. Expansion of urbanization always takes place at the cost an irretrievable impact on the converted agricultural land. This in turn, affects surrounding agricultural land values by raising the speculative value of land based on an assumption that this growth trend will continue into the future.

Preference for acreage living and fragmentation - subdivision of agricultural lands for country-residential development, sometimes referred to as 'rurbanization,' is becoming more common as people choose to live outside cities and then commute to into urban centres as a lifestyle preference. It remains to be seen whether rising energy prices, especially for commuters at the gas pump, slow this trend in the long run.

Demand for tourism and recreation activities – Increasing demand for more of outdoor recreational amenities for city dwellers has an untoward impact on the agricultural lands located around the municipalities and suburban areas. Inroads by tourist parties from nearby towns/cities often leave a lasting scar on the serenity and freshness of the farming environment.

Interest and importance in protecting farmland arises in part from desires to maintain crop production and food security together with the manifold rural amenity values perceived by the citizens who want to protect farmland to preserve non-market benefits as listed below

Environmental Amenities

- Open space
- Soil conservation
- Biodiversity
- Wildlife habitat
- Recreational opportunities
- Scenic views
- Isolation from congestion
- Watershed protection

- Flood control
- Groundwater recharge

Rural Development Amenities

- Rural income and employment
- Viable rural communities
- Preservation of local traditional knowledge
- Diversified local economy

These rural amenities are often a by-product of the agricultural production process. Ensuring the continued availability of these rural amenities may be the most important reason for farmland protection, especially for farmland protection near urban areas.

The dynamics of tradeoff between use of urban fringes for industrial/ real estate development and protecting it for agricultural growth may be well focused on the basis of the following model

Analysis of alternative use of urban fringes: A Dynamic optimization model

Here we consider a very simple model similar to the type used by Parks(1995) in explaining alternative uses of urban fringe areas. We assume that the socio-economic planner can take the policy decision regarding converting a defined stock of agricultural land resources (in urban fringe areas) T_t at time t , which may be put to industrial or real estate or infrastructure development operation. For the sake of simplicity of analytical presentation, henceforth these operations are classified under industrial head. The benefit at time t from maintaining aforesaid landstock T_t for agricultural purposes is given by $\pi_A(T_t)$. Benefits from land used for industrial /developmental activities at time t is given by $\pi_I(R_t)$ where R_t stands for the land stock used for industrial purposes. Environmental benefits that may be derived from maintaining agricultural land is indicated by $\pi_E(T_t)$. Clearance of marginal agricultural land for industrial use is assumed to involve certain cost of C_t per unit of agricultural land while the amount of converted agricultural land at time t is indicated by a_t .

Now the economic planner is assumed to maximise the present value of net benefits from extraction of both agriculture and industrial activities (in urban –rural fringes) by choosing the optimum level of agricultural land to be converted to industrial purposes. So he maximises

$$\int_0^{\infty} [\pi_A(T_t) + \pi_I(R_t) + \pi_E(T_t) - C_t a_t] e^{-rt} dt \text{ by choosing } a_t \dots\dots\dots(1)$$

subject to the following agricultural and industrial land resource dynamics

$$dT_t / dt = -a_t \dots\dots\dots(2)$$

$$dR_t / dt = a_t \dots\dots\dots(3)$$

The current value Hamiltonian of the aforesaid problem stated in linear control variable a_t stands as

$$H = \pi_A(T_t) + \pi_I(R_t) + \pi_E(T_t) - C_t a_t - \lambda_{Tt} a_t + \lambda_{It} a_t \dots\dots\dots(4)$$

where λ_{Tt} , λ_{It} indicate shadow prices of agricultural land and industrial land respectively at year t . Applying the maximum principle we have

$$a_t = a_{\max}, \text{ if } \partial H / \partial a_t = -C_t - \lambda_{Tt} + \lambda_{It} > 0, \dots\dots\dots(5)$$

$$a_t = 0, \text{ if } \partial H / \partial a_t = -C_t - \lambda_{Tt} + \lambda_{It} < 0, \dots\dots\dots(6)$$

$$\text{and } a_t = a_t^* \text{ if } \partial H / \partial a_t = -C_t - \lambda_{Tt} + \lambda_{It} = 0, \dots\dots\dots(7)$$

Implication is that if the net shadow value of a unit of land $-C_t + \lambda_{It}$ after conversion for industrial purposes, exceeds the opportunity cost of agricultural land λ_{Tt} , then all the agricultural land at the margin tends to be cleared for industrial purpose. There is no basis for the re-conversion to industrial purpose if the reverse inequality holds. There is often found a tendency among planners to consider the multiple spread effect benefits from land for industrial use at a premium value compared to the low value benefits that may

be available from heterogeneous qualities of agricultural land. And if the available tangible benefits from agriculture are perceived to be of little value compared to that in industrial use, all the agricultural land(in the defined area) tend to be cleared very quickly despite its function as carbon sequestrator, maintenance of bio-diversity, amenity value, psychological /attachment value etc. This involves a bang-bang solution due to the linearity of the Hamiltonian on a_t .

The last case ie $a_t = a_t^*$ becomes relevant when conversion of agricultural lands(considered as an aggregate entity) to industrial use takes place only upto a certain level where the net shadow value of an additional unit in industrial use equals the marginal opportunity cost for some unit of agricultural land at time t . In order to understand the steady state condition for agricultural land conversion we consider the adjoint equation in the form

$$d\lambda_{Tt}/dt = r\lambda_{Tt} - \partial H/\partial T_t = r\lambda_{Tt} - [\partial \pi_A/\partial T_t + \partial \pi_E/\partial T_t] \dots\dots\dots(8)$$

$$\text{or } r(\lambda_{Tt} - C_t) = [\partial \pi_A/\partial T_t + \partial \pi_E/\partial T_t] + d\lambda_{Tt}/dt \dots\dots\dots(9)$$

as $\lambda_{Tt} = \lambda_{It} - C_t$ when $\partial H/\partial a_t = 0$.

$$\text{and } d\lambda_{It}/dt = r\lambda_{It} - \partial H/\partial R_t = r\lambda_{It} - \partial \pi_I/\partial R_t$$

At the steady state shadow value of industrial land does not change so that we have $d\lambda_{It}/dt = 0$ implying

$$r\lambda_{It} = \partial \pi_I/\partial R_t$$

Putting this value in equation (9) we get

$$\partial \pi_I/\partial R_t - rC_t = [\partial \pi_A/\partial T_t + \partial \pi_E/\partial T_t] + d\lambda_{Tt}/dt \dots\dots\dots(10)$$

In the steady state however, opportunity cost of agricultural land does not change (i.e. $d\lambda_{Tt}/dt = 0$) so that optimal condition for agricultural land conversion at steady state appears as

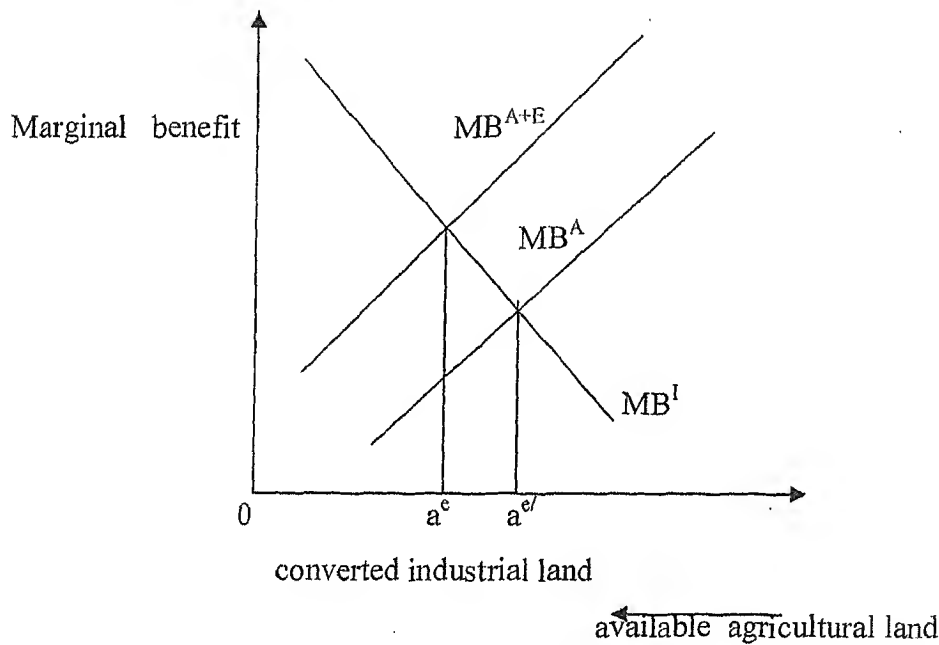
$$\partial \pi_I / \partial R_t - rC_t = [\partial \pi_A / \partial T_t + \partial \pi_E / \partial T_t] \dots\dots\dots(11)$$

The implication is that net marginal benefit from land in industrial use should be equal to the forgone marginal benefit from agricultural land.

Following the basic logic of this argument, we can say that so long as the net marginal benefits from industrial land use exceed the combined marginal benefits from agricultural uses and environmental benefit, conversion of agricultural land would continue to occur and the socially efficient rate of conversion to industrial use at any time t occurs when the aforesaid marginal benefits from land converted to industry is equated to of forgone marginal benefit from agricultural land, as expressed in the last equation.

It might reasonably be expected that the marginal agricultural benefits and environmental benefits would go up as the remaining agricultural land resources becomes smaller and smaller because of urban proliferation to rural areas. This is likely to lessen the rate of conversion of agricultural land to industry. But this effect might be countered by a rise in the value of marginal net benefit from land converted to industrial use resulting from higher pressure on industry associated with an increasing population and higher incomes. If the process is repeated period after period, this might eventually result in all the agricultural land being converted to industry. Moreover, given the fact that environmental benefits (being non marketable in nature) are often not perceived and hence tend to be neglected, the likelihood of all the specified stock of agricultural land being converted to industry is all the more strengthened. This view comes closer to the bang bang solution implied in $a_t = a_{\max}$. Empirically, considering the case of U.S.A metropolitan cities, it has been observed that conversion of farmland and open space on the rural urban fringe has been growing faster than population growth in the suburban areas. There is little question that if present high rates of conversion continue, entire regions in some parts of the East, South, and far West will be empty of the farms and agricultural industries once located at those places. This finding accords well with the theoretical nicety of bang-bang solution.

The fact that non-consideration of environmental benefit of agricultural land leads to speedy and larger scale conversion of this land resources to industrial uses, can be demonstrated by the following diagram. We may reasonably assume that as conversion of agricultural to industrial land rises, the marginal benefit of remaining agricultural land rises and vice versa. Symmetrically with rise in converted industrial land its net marginal benefit falls and vice versa. In the following diagram converted industrial land is measured along the horizontal axis while available agricultural land resources are measured along the reverse direction of the horizontal axis. The more agricultural land is converted to industry, the less is the available agricultural land.



Accordingly the net marginal benefit schedule of land converted to industry (MB^I) is downward sloping one while the marginal benefit schedule of available agricultural land in rural fringes is MB^{A+E} (composed of both agricultural output benefit and environmental benefit) and presented as an upward one as the axis has been defined. For simplicity the marginal benefit schedules are represented by straight lines.

The socially optimal allocation of agricultural land at any time period t requires that marginal benefit from agricultural land and associated environmental benefit taken together coincides with the marginal net benefit of land converted to industrial production. In the diagram this occurs at point a^e on the horizontal axis. However if the

component of opportunity cost associated with allocating land to industrial use in terms of foregone environmental benefit of agricultural land is not taken into account, then the MB^{A+E} curve shifts down to MB^A (without the environmental benefit component). As a result the new equilibrium through intersection of MB^A and MB^I occurs to the right of the old equilibrium, at a point (say) a^e , indicating that more of agricultural land is converted to industrial use. The underlying reason is that exclusion of environmental benefit from agricultural land lowers the marginal benefit from agricultural use. In order to establish the optimum condition marginal net benefit of agricultural land needs to be lowered which requires conversion of more agricultural land for industrial purposes (because of the assumption of diminishing marginal benefits). The greater the degree of marginal environmental benefit and its non consideration, the greater will be the rate of conversion of rural agricultural fringes into industrial use. Besides this if the MB^I curve be relatively flatter (resulting from a slower rate of decrease of marginal net benefit of land converted to industry), then also use of rural agricultural fringes for industrial use is likely to occur at a higher rate.

Conflicts and compatibility of land use at urban fringes

Again certain agricultural land uses interspersed with residential land uses can lead to a variety of spillover effect for rural residents on the rural-urban fringe. Neighboring rural residents may be exposed to various noxious odors, spray drift, noise at night, dust, animal excreta, slow-moving farm implement traffic, and other uncherished agricultural spillovers. On the other hand, farmers may fall a prey to a variety of problems due to locating rural subdivisions and residential property adjoining to operating farms. These usually include trash and problem of disposal of domestic sewerages, liability for trespassing children, complaints and suits for potential nuisance, malodour, and noise, safety hazards from increased traffic and people, and crop or livestock losses due to trespassing neighbours and their pets. The longer-term impacts of incompatible land uses can be more substantial for agriculture on the rural-urban interface than for agriculture in the hinterland. As the demand for urban development land rises on the fringe, some farmers become land speculators who sell out to the highest bidder. Their unexpected fabulous earnings can be used to maintain them on the basis of simply the returns from

invested assets in banks or to establish farming operations at a new, more distant location leaving their traditional land exposed to uncertain uses. In the process, traditional markets for the agricultural supply and marketing industries become less profitable and competitive on the fringe. The remaining farmers are likely to face increasing financial squeezes between output prices and input costs. Farmers located in the path of development are less likely to make large investments to expand operations. These farmers are also less likely to replace existing farm structures and equipment as they wear out. Some studies show areas of underutilized and idled land developed near and between larger urban areas, due to the impermanence of agriculture on the rural-urban fringe. At the same time, not all agricultural activity is incompatible with urban development while some small size industrial activities requiring less of land areas compared to large ones may be integrated with agricultural development in the web of backward and forward linkages. New opportunities and new markets can be generated for horticultural products, orchards, and farmer markets for fresh produce. However, supplying these markets requires a subtle shift in the farmer's focus. In contrast to traditional farm commodity marketing systems, value added techniques and direct marketing skills become more important as farmers begin to serve an increasingly sophisticated customer base. Again locating some small scale agro/forest based industries, food processing units, oil pressing, cotton ginning, flour milling with not a great intervention in agriculture and environmental amenities, can serve to promote agricultural productivity in adjoining region in an integrated network.

Concluding observation and policy recommendation

Town and village enterprises (TVE) for Rural Industrialisation based on Chinese model can have a great impact in forging the hiatus between developmental efforts and agricultural activities in urban fringes. TVE model focuses on two-way nexus: Focus on agricultural output together with farm machinery tools, maintenance service, and fertilizer, industrial inputs, agro processing units and locally needed consumer goods. The establishment of a community-based initiative that promotes locally grown agricultural items linked with a chain of processing industries, and which is concerned with social justice, economic fairness and environmental sustainability seems to be a compatible

solution at the urban fringes. The slow food movement connects consumers directly with local farmers, value-added processors and retailers in an attempt to challenge corporate consolidation of the food industry and to emphasize the processes of food production rather than just the products.

In recent times emergent global priority amongst municipal officials, socio-economic planners and citizens has been to promote and design communities that meet a variety of needs by incorporating a mixture of land uses within neighbourhoods and by using land resources more efficiently at the regional scale. Farmland is a critical component of green infrastructure resources that provide economic and environmental benefits within cities.

Apart from this any step for undertaking industrial program in fringe areas of towns/cities should focus on

- (a) proper land mapping followed by analysis of soil quality
- (a) Decentralization in management
- (b) Liaison and interaction at grass root level with agriculturists
- ©Direct bargaining with the farmers and owners of agricultural land
- (d)Generation of adequate alternative employment for people thrown out of agriculture
- (e) Provision of adequate compensation for agricultural land based on the opportunity cost of forgone perennial source of income
- (e)Pressurizing for donation from industrial owners for social sector development

Again rural amenities are often a byproduct of the agricultural production process. Ensuring the continued availability of these rural amenities may be the most important reason for farmland protection, especially for farmland protection near urban areas. Consequently, information on the relative importance of these rural amenities can be useful when considering the current state and future direction of farmland protection programs.

The effects of farmland protection on the provision of rural amenities has received little attention. Despite the numerous programs nationwide to protect rural open space and to preserve farmland, very little is definitively known about which individual rural

amenities taxpayers really care about when they support farmland protection programs. Given that farmland protection programs can be expensive to implement, understanding how the public values rural amenities can be crucial in determining preservation priorities.

This strategy holds implications for the set of amenities that are likely to be preserved in these programs. For example, emphasizing protection of cropland versus pastureland yields different scenic views, and has different implications for water quality, wildlife habitat, and other environmental amenities. It also implies a tradeoff between long-term survival of some form of agriculture, at the possible cost of providing a mix of rural amenities that is less than optimal today.

Farmers often may not find it profitable in using their land for production of traditional commodities especially when significant pressures from urban developers or other industries raise land values. The highest-and-best-use, solely in terms of economic profitability, may often be not to use the land for agricultural purposes but to sell it for urban or industrial development. This is likely to be relevant in low productive mono-cropped areas.

There is often a tendency among planners to consider agricultural land values from the perspective of its short term economic benefits only compared to the multifaceted benefits of industrial or other developmental programmes. Urban development and industrial uses almost always command much higher returns than agricultural uses, meaning that the preservation of lands for agricultural production is de-prioritized. Hence it seems imperative to consider the agricultural land character and map it according to its different graded values, instead of reducing analyses to short term economic considerations alone. This is crucial for comparing its potential with a contemplated developmental project for fostering a socially and economically beneficial and compatible solution of land uses at urban fringes.

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**MODELLING FOR SUSTAINABLE URBAN
EXPANSION : A CASE STUDY USING GIS
TECHNIQUE**

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Modelling For Sustainable Urban Expansion, A Case Study Using GIS Technique.

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Abstract

Human activities have been recognized as a major force shaping the biosphere. Understanding these actions and the social forces that drive them is crucial to understanding, modelling and predicting local, regional as well as global environmental change and also for managing and responding to such change. Changes in the land have often been seen as improvements by some or all land users. Alteration is nearly inseparable from human occupation and use, and the goal is to encourage improvement and to counter forces that encourage degradation. To assess what effect a particular land transformation and its consequences will have involves difficult issues of forecasting (future resource demands and opportunities as affected by technical and socioeconomic change) and evaluation (distribution and the rights of future generations). However, we now possess a better scientific knowledge of the physical extent, character and consequences of land transformation which serves as the foundation for any such assessment. The present study highlights the loss of cropland due to urban expansion and suggests measures for its protection.

I. INTRODUCTION

Land transformation is one of the most important fields of human induced environmental transformation. Land transformation accelerated and diversified with the onset of the Industrial Revolution, the globalization of the world economy and the expansion of population and technological capacity. Forests were cleared, grasslands plowed or grazed, wetlands drained and crop lands and settlements expanded. Almost all of the world's lands are now used and managed, albeit in widely varying degrees of intensity (Richards, J F 1990). Land transformations, although localized, contribute to wider-reaching, including globally systemic, processes. Global demand for the products of the land is likely to continue growing in the foreseeable future. Maintaining the capacity of the land to sustain that demand will remain of fundamental importance. The level of concern elicited by current trends reflects the possibility that much land transformation in some sense constitutes land degradation (Blaikie, P and H C Brookfield (1987).

Settlement refers to the occupation of land for human living space (CRGEC, 1991). Until quite recently, nearly everyone lived in rural areas. In 1800, only 3 per cent of the world's population lived in urban centres of 5,000 or more and many of these behaved like large villages in their socio-economic

activities (HSEC, 1974). By 1900, 14 per cent of the world's population was living in urban centres and this proportion increased rapidly after 1950 to reach close to 50 per cent today (United Nations, 2001).

Urban settlements cover a relatively small part of the earth's surface. One estimate suggested that urban areas cover only 1 per cent of the total land surface (Miller, G T, 1988). But it is expanding at an alarming rate, globally, it was estimated that 24 million hectares of crop land have been transformed to urban use by the year 2000. This is only about 2 per cent of the world's total crop land but it provides the equivalent present-day food supply for some 84 million people (Simmonds, I G 1989). The loss of crop land to urbanization is most severe in low and middle-income nations. One estimate suggested that by 2000, more than 476,000 hectares of land a year was built upon in low and middle-income nations (World Resources Institute, (1988). The situation varies greatly from one country to another and, in general, the expansion of settlements over crop land is better managed in high income nations (Nicolson, Lord, D 1987).

The loss of crop land to human settlements is far more serious in India; about 1.5 million hectares of land (mostly agricultural) went to urban growth during 1955-1985 and a further 800,000 hectares was estimated to be transformed between 1985 and 2000 (Chabra, R 1985). With rapid urbanization and the extension of urban areas, combined with continuing population growth, both agricultural and social scientists have long expressed a concern as to whether India will be able to feed its population. This research problem was chosen with these circumstances in mind and Aligarh, a Class I city in western Uttar Pradesh (India), was chosen as the study area.

II. THE STUDY AREA

Aligarh is an old city, which grew from an uplifted part (*Kol*), witnessed a long and cherished history including *Mughal's, Maratha's and Britisher's rule*. Aligarh city situated in the western part of Uttar Pradesh, between *Ganga* and *Yamuna* rivers at 27°53' north latitude and 78°35' east longitude. It is district headquarter and is famous as educational and industrial city. This city has gained importance because of its proximity to the national capital (New Delhi) and industrial cities of Uttar Pradesh (Kanpur and Ghaziabad). Systemic and planned development of Aligarh city would serve dual purpose – it would reduce the pressure on these cities, as it would provide employment opportunities in the city and it can even supply raw materials to these cities. But due to some social and economic problems the desired level of progress has not been attained.

In 2001, the city had 669,087 inhabitants with a density of 473 persons per hectare. Projections by the Town and Country Planning Department suggest that it will have some 1.2 million inhabitants by the year 2015 and there will be a need for another 64,000 houses. Thus, the city is bound to expand quite extensively onto the fertile crop land surrounding it.

III. DATA AND METHODOLOGY

The present study is based on remotely sensed data (satellite images) combined with extensive field checks and surveys. The present study is based on IRS-1D with 5.8 metres resolution. The study is spread over a thirty year time span (1974 - 2004). The urban land use and transformation mapping of Aligarh and its surrounds was done with the help of city guide map (prepared by Survey of India) on a 1:10,000 scale, acquired in 1974, and IRS-1D geo-coded panchromatic satellite analogue imagery on a 1:12,500 scale, acquired in 2004. The study was done in a GIS environment because the use of GIS techniques coupled with remote sensing are essential elements for the preparation of an integrated development plan. This work was carried out using ILWIS software.

IV. DISCUSSION

Aligarh's is known as a seat of learning (The Aligarh Muslim University) but its development is also attributed to its agrarian role. It lies on fertile land between two major Indian rivers, the Ganga and the Yamuna. It had a well-developed market for agricultural products and act as a service centre for nearby towns and rural settlements. In the last few years, as new industries have developed, the city and its surroundings have undergone radical changes, including the expansion of its built-up area and a transformation in its population's occupational structure.

a. Urban Land Use in Aligarh City:

The present study is spread over 15398 hectares of land, which is much beyond the actual urban limit of Aligarh city. This extended area covers expansion of the city in all directions. From the perusal of table 1 and figure 1, it is evident that Aligarh city has witnessed large-scale changes in land use in and around the city. The statistics shows that urban area has increased from 2276.8 hectare in 1974 to 5445.8 hectare in 2004 (an increase of 139 per cent). Similarly built up area has increased from 1832.7 hectare to 4534.9 hectare (147 per cent). All these increases are at the expense of non – built up area, which shrunk from 13566.1 hectare to 10863.6 hectare (a decrease of 20 per cent) during the study period. The city has witnessed major land use changes among classes such as residential area, an increase of 2501.2 hectare (244 per cent increase), commercial area, an increase of 145.7 hectare (258 per cent increase), vacant land, an increase of 465.6 hectare (114 per cent increase) and industrial area an increase of 78.3 hectare (96 per cent increase). These changes were basically swallowed the crop land of the surrounding areas. Crop land has lost 3078.3 hectare (a decrease of 23 per cent) to the urban sprawl of Aligarh city. Among the other land use classes not much change has been observed. Area under villages has marginally reduced as some of these villages were swallowed by urban expansion. Similarly 361-hectare land was occupied by the Aligarh Muslim University and 17.6 hectare by Aligarh fort. Both of these are located in the northern part of the study area and remained unchanged. The salient characteristics, which emerges from table 1 and figure 1 are

as followed. Aligarh city has recorded a significant increase in built up area and this is mainly because of population growth and development in secondary and tertiary occupation structure. But this built up expansion was haphazard and without any planning.

b. Land Transformation in Aligarh

Land transformation is the process of identifying differences in the state of any phenomenon by observing it at different time periods. Land is in a continuous state of transformation as a result of various natural and man-made processes. The study of land transformation, therefore, requires a comprehensive understanding and monitoring of all the factors that cause the land transformation. During the study period, Aligarh city has not only expanded from its original size but there was significant interchange of land among various land use classes. Table 2, and figure 2, which are prepared applying G.I.S. technique, shows the changes in various urban land use class of the city. These changes are because of the development of city resulting in increased demand of land for residential, commercial, industrial etc. purposes. This demand of land along with site attraction, functional convenience, functional magnetism and the land value of that particular area ultimately influence the pace and direction of urban land use change.

The residential area has increased by 2501 hectare, capturing land mainly from agriculture (2047.4 hectares), vacant land (425 hectares), tree plantation (105 hectares) and villages (28.4 hectares). Residential area also lost area for commercial development (105 hectares). Commercial area has increased from 56 hectares to 202 hectares gaining land from residential area (105 hectares) and vacant land (40 hectares) in the city. Industrial area has increased from 78 hectares to 153 hectares capturing mainly the agricultural lands (70 hectares) because this development is mostly away from the city centre. Plantation area has reduced by 105 hectare and the entire area was used for residential. The city has recorded a massive increase from 406 hectares in 1974 to 872 hectares in 2001 under the land use class vacant land. It captured land from agriculture class (1030 hectares) while lost area mainly for residential (425 hectares) and commercial (40 hectare) development. During the study period all the city expansion is mainly on crop lands, which decreased from 12924 hectares to 9845 hectares resulting in heavy losses of fertile crop lands.

c. Loss of Crop land due to Urban Expansion

India still is basically an agrarian country and any expansion in builtup or even non builtup is at the expense of crop land (mostly good quality fertile land). The present study focuses on this trend where crop land is being consumed by urban expansions. Tables 1 and 2 and Figures 2 and 3 shows that the area under agricultural use has declined. There was a tremendous increase in the urban area between 1974 and 2004 (of 84 per cent) while a total of 3078.3 hectares of fertile crop land were lost due to the city's expansion. Table 1, 2 and Figures 2 and 3 show land transformation from three main land use classes, namely, agriculture, vacant land and plantation. Table 2, which was prepared using GIS techniques, shows that, of the 3078 hectares of fertile crop land that was lost, 1031 hectares are recoverable (land where no permanent

construction has taken place, i.e. land transformation to plantation or vacant) and 2161 hectares are not recoverable (land where permanent construction has taken place, i.e. land transformation to residential, commercial, industrial, etc.). Vacant land suffered a total loss of 466 hectares and none of which is recoverable. This indicates the rapid loss of fertile crop land, much of which is non-recoverable because some permanent construction has been undertaken. Significantly, the land where no permanent construction has taken place, i.e. that which is mainly lying vacant, can be recovered but it will not be an easy task to restore this land back to agricultural use.

Tables 3 and 4 show losses of total crop land and food grain production. The total estimated loss of food grain production due to urban expansion in the study area from 1974-2004 was about 92349 quintals (average annual food grain production in the study area is more than 30 quintals per hectare). Aligarh is expanding by about 103 hectares annually. This implies that every year the loss of food grain production will increase by 3078 quintals. If the projection that Aligarh will have around 1.2 million inhabitants by 2015 is realized and if the city continues to grow at the same rate, a further 10,000 hectares of fertile crop land will be converted to non-agricultural uses. Furthermore, around 30,000 quintals of food grain annually would be lost from the study area alone. These figures clearly point to the magnitude of the problem.

d. Land Capability Evaluation

This study also made an attempt to estimate the real loss of crop land and its resultant loss of agricultural production on the basis of capability of land. The land capability evaluation was made on land which had been under agricultural use but which, due to urban influences, was brought into non-agricultural use during the study period. Land capability classification is an appraisal of the physical characteristics of land, its inherent soil qualities and the farm management practices (Shafi, M., 1969). Land capability of the land was evaluated from the following indicators: distance from the city centre, current and previous use of land practiced, soil fertility, irrigation potential, potential productivity of land and land management. The maps showing these indicators were firstly assigned a capability score which had the range value of 0 – 10 (not suitable – highly suitable for agricultural use) this way six suitability aspect maps were prepared. These maps were further combined into a composite capability map by adding the suitability scores.

On the basis of these characteristics, three – ‘PPU’, (potential production unit) as a standard unit for land classification was developed. A PPU is defined as the potential production from one hectare of good average farmland under good farm management practices. The application of PPU techniques for land classification helps in assessing the real loss of crop land due to urban influences and the resultant transformation to other uses. The real loss can be estimated by multiplying the PPU factor by the crop land loss of the different land capability classes (Stamp, D., 1962). The suggestion is that real loss would be double that of actual crop land loss if Class I land is used, whilst real loss would be only half this if Class III land is used.

Table 5 shows how the study area has lost 1132 hectares in the Class I land capability category, 1347 hectares in the Class II category and 599 hectares in Class III. Using the PPU application, the estimated real loss of crop land is therefore 3910.6 hectares. Class I category land was mostly lost in the western part of the study area. More Class I category land in the south eastern area has also been converted for residential and speculative land lying vacant. Of the total loss of crop land, most was in the Class II category (1347 hectares), most of which has been converted into residential and vacant land; this was spread over the south and south eastern part of study area along the municipal boundary. Class III category land was mostly converted for industrial, vacant and residential development in the northern part. This part is characterized by water logging as it is low lying. This land surrounds the university, where demand for residential land is high.

V. CONCLUSIONS

India is one of the world's bigger countries with 328.73 million hectares of geographical area. The vastness of India along with substantial fertile cropland gave the general feeling for abundance of land and the concern for at least preserving the land is lacking. The rapid growth of population, changes in social and economic structure and trends of urbanization in the last few decades have made researchers to think over the judicious use of land. The country cannot afford to destroy the fertile cropland in the name of (unplanned) development. Especially, the rate at which the cropland is being converted for built-up and non-built-up development due to expansions of settlements. The crucial fact is that "land is finite" and the converted land can not be recovered back in future.

The present study raises three main issues with loss of cropland due to urban expansion:

1. **Urban shadow effect:** The study area has recorded a loss of 3078 hectare of crop land mainly due to urban shadow effect. Especially the conversion of crop land to tree plantation and vacant lands are the glaring example of it.

Farmers living in the vicinity of cities face problems resulting in either lowered yields or lands not farmed, even though the land is not actually converted to urban uses. Farmers of fringe areas are subject to present or short-term future development pressure, begin to devote less capital for farm maintenance and management. The productivity of the land begins to decline, which ultimately results in selling these lands to property dealers. They do not maintain it as agriculturally productive land, but allow it to remain idle until such time as the advancing suburbs justify transforming it into suburban areas. The net effect of these forces cause a much greater loss of cropland to urban uses than the figures normally given for land transferred to urban uses indicate. It is estimated that for each hectare of land actually transferred into an urban related land use, almost 2 hectare of additional land is lost from agricultural use.

2. **Quality of cropland converted:** Not all land is equally suitable for farming purposes. In India especially

in Indo-Gangetic plain region, almost the whole land is flat, well drained, adequately watered and fertile land, which makes it very suitable for agricultural activity. But these same characteristics also make it a prime land for the development of the settlements in this region. The study area also recorded conversion of 36.7% of prime land with class I. land capability class indicative of the disproportionate concentration of development on good quality crop land. The significance of this is obvious. Lands in class I yield a much higher return for the same inputs of labour and capital. These are the lands which are of primary importance in maintaining the agricultural productivity.

3. **Cost of cropland conversion:** A more significant factor intensifying the problem of loss of prime cropland is associated with the cost of such land conversion. These costs are twofold, and are related to the actual cost of replacing the lost farmland, as well as to government programs that prompt urban expansion and encourage loss of cropland. When the prime farmland is lost, the value of the crop production is immediately foregone. The cost to replace that land is fairly substantial. The government makes effort to bring some additional land for agricultural uses by reclaiming wastelands but the question is "how much and at what cost?".

Land use is not static, but rather a dynamic interacting system. Changes are occurring in each of the categories of land use, which have an impact on the residents of the nation both at local as well as regional level. Urban sprawl with its attendant destruction of prime cropland seems far severe than popularly supposed. Although urban expansion cannot be restricted but with proper management and planning we can restrict and direct this expansion in desired and sustainable way, protecting the fertile crop lands. The urban and regional planners should make sure that urban expansion would not be in any case on class I of land capability category and it should be diverted towards class III category land.

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Table 1
Aligarh City, Area under different land Uses (1974 and 2004).

Land Use / Year	Area (1974)	Area (2004)	Change in Area	%age Change
Residential	988 (6.3)	3756.6 (23.9)	+2768.6	+280.2
Villages	130.7 (0.8)	105.2 (0.6)	-25.5	-19.7
Commercial	59.2 (0.3)	201.5 (1.3)	+142.3	+241.5
University	358 (2.2)	358 (2.2)	--	--
Industrial	62.2 (0.3)	148.5 (0.9)	+86.3	+138.7
Aligarh Fort	17.7 (0.1)	17.7 (0.1)	--	--
Vacant Land	447.3 (2.8)	877 (5.5)	+429.7	+96.2
Tree Plantation	169 (1.0)	64.7 (0.3)	-104.3	-61.7
Agricultural Land	13213 (84.2)	9885.7 (63.0)	-3327.3	-25.2
Water bodies/logged	46 (0.2)	58.7 (0.3)	+12.7	+26.1
Others	188.9 (1.2)	206.4 (1.3)	+17.5	+9.5
Total	15680	15680	--	--
Total Built up Area	1787	4776.2	+2989.2	+167.2
Total Non Built up Area	13893	10903.8	-2989.2	-21.6
Total Urban Area	2234.3	5653.2	+3418.9	+153

Note: 1. Area in hectare.

2. Figures in brackets are proportion of land under particular land use class to total land.

Source: Based on Aligarh city, Guide map (Survey of India) and IRS 1D Satellite Imagery.

Table2: Aligarh City, Land Transformation (1974 and 2004).

Land Use	1 Res.	2 Vil.	3 Com	4 Govt.	5 Univ.	6 Soc.	7. Ind.	8. Fort	9. Vac.	10 Trec	11 Agr.	12 Water.
1. Residential Area	1025	28.4							425.6	105.5	2047.4	
2. Villages		135.4										
3. Commercial Area	105.7		56.3								40	
4. Government Institutions	4.4			106.4								
5. University					361.1							
6. Social and Recreational						70.2					4	
7. Industrial Area							78.3		83.7		70	
8. Aligarh Fort								17.6				
Vacant Land									406.6		1030.9	
10. Tree Plantation										172.9		
11. Agricultural Land											12924	
12. Water bodies/Logged							15.7					45

Note: 1. Area in hectare.

2. Figures in bold letters (diagonally) are area under that particular land use in 1974, while figures in the same column is shift in area to other classes and figures in same row are increase in area, captured from other land use classes.

Source: Based on Aligarh city, Guide map (Survey of India) and IRS 1D Satellite Imagery.

Table 3: Loss of Cropland in Aligarh City, 1974 – 2004.

Year	Area under Agriculture (in hectare)	Loss of Cropland	Average Annual Loss	Time in Years
1974	12924	3078.3	102.6	30
2004	9845.7			

Table 4: Estimated Loss in Foodgrain Production in Aligarh City, 1974 – 2004.

Year	Foodgrain Production (in Quintals)	Loss in Foodgrain Production (in Quintals)	Average Annual Loss (in Quintals)	Time in Years
74	387720	92349	3078	30
2004	295371			

Table 5: Actual Loss of Cropland in Aligarh City (Based on Land Capability Evaluation).

Land Capability Class	Area (in hectare)	Potential Production Unit	Actual Loss of Cropland (in hectare)
Class I	1132	2	2264
Class II	1347	1	1347
Class III	599.3	0.5	299.6
Total	3078.3		3910.6

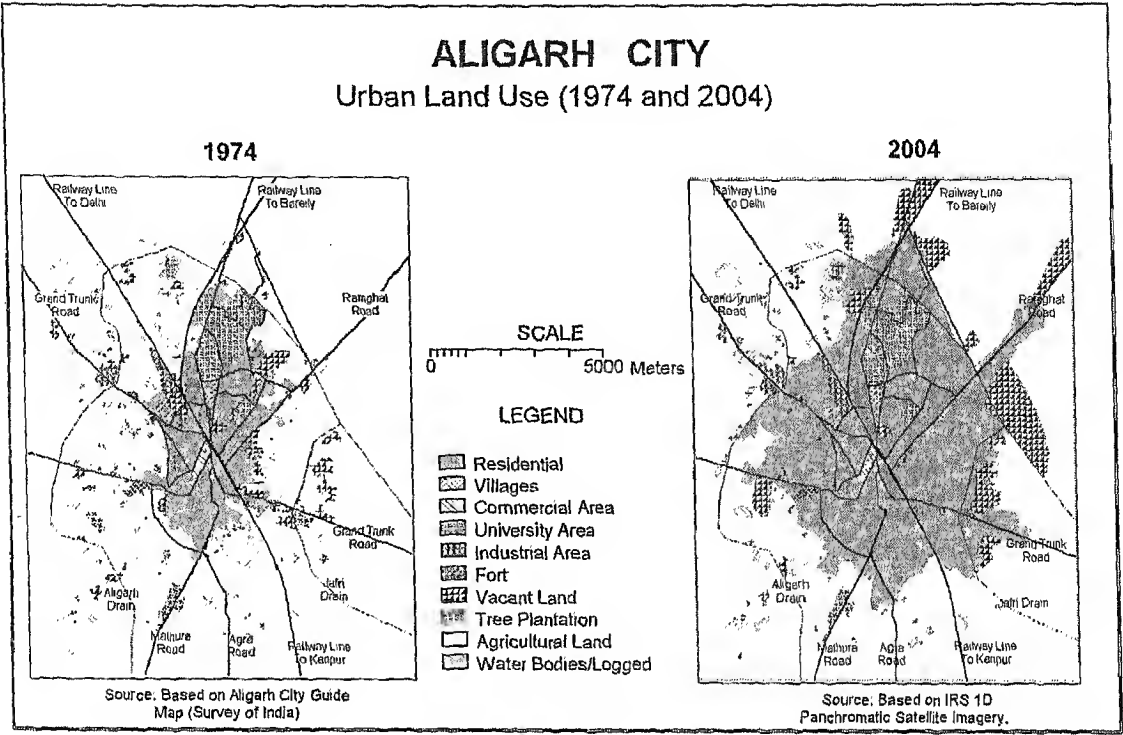
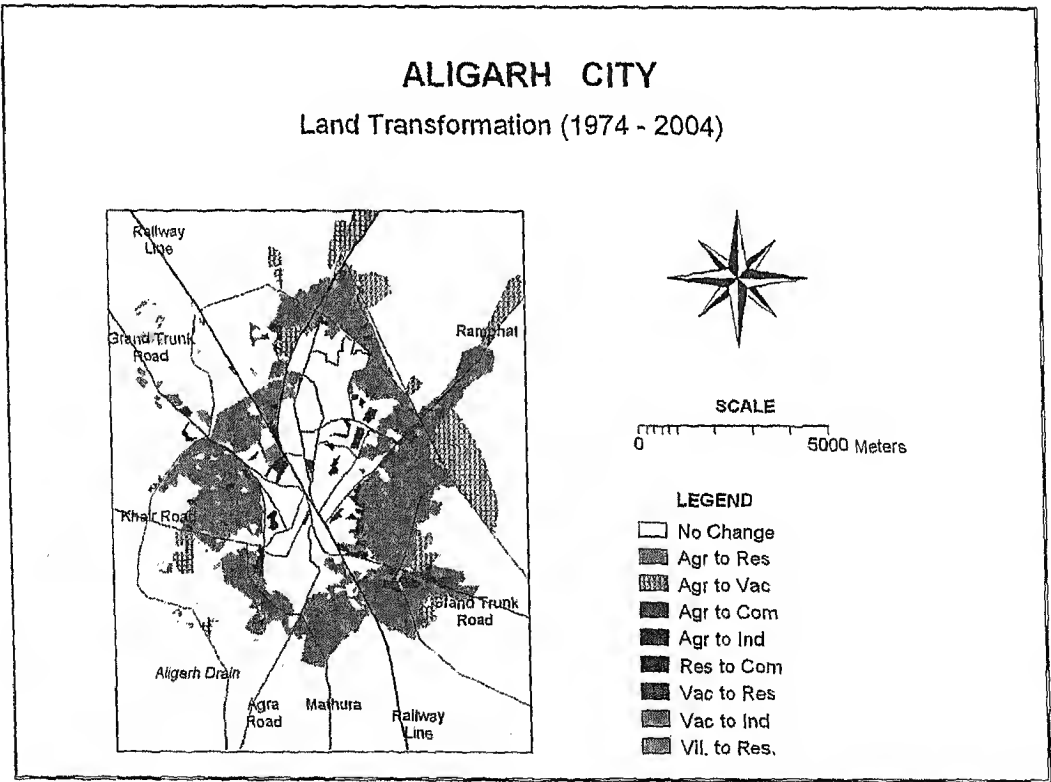


Figure: 2



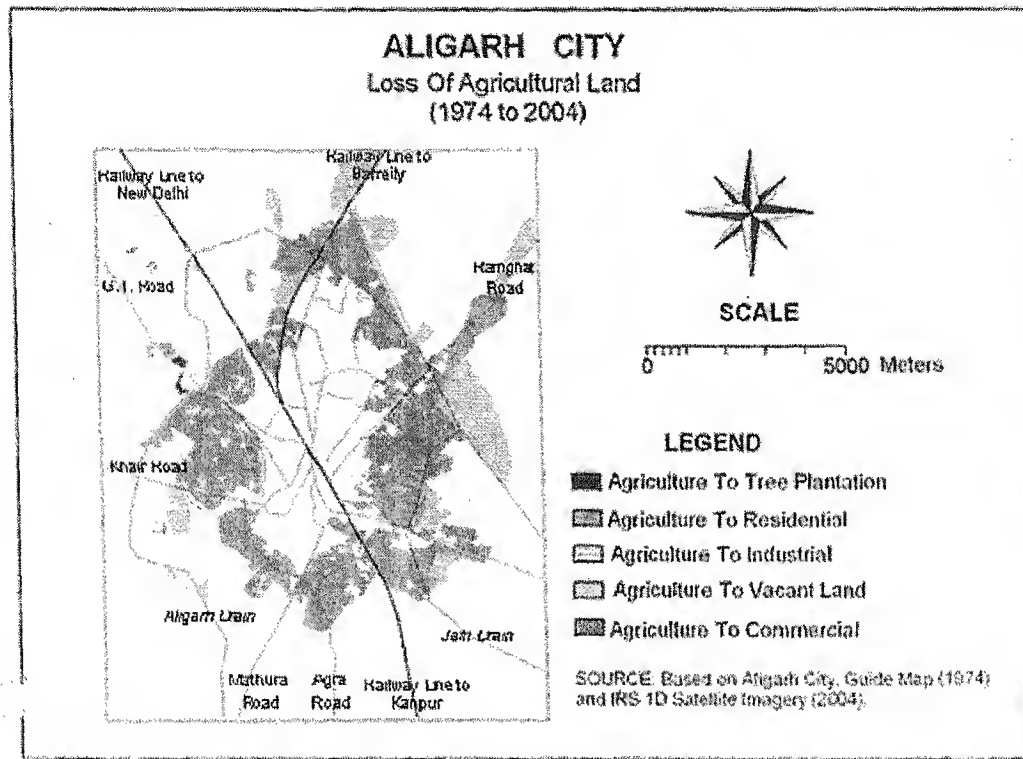


Figure 3

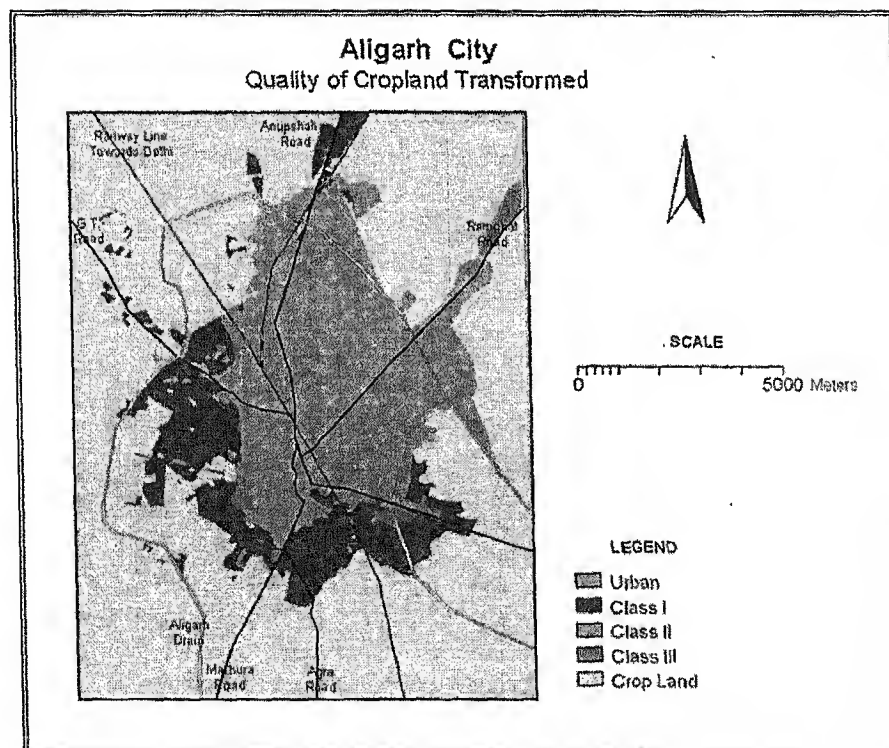


Figure 4



9

URBAN ENCROACHMENT ON AGRICULTURAL LANDS

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Paper Presented at the
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1947-1948

URBAN ENCROACHMENT ON AGRICULTURAL LANDS

Ali Mohammad* and Nawaz Malik**

Usually sprawl takes on the fringe, at the edge of an urban area, or along the highways. At the urban – rural fringe, the agricultural land becomes fragmented with farmers unable to take advantage of economies of scale, and land prices have become inflated due to non – agricultural values, so farmers are unable to realize reasonable returns to land. Some of the causes of the sprawl include – population growth, economy and proximity to resources and basic amenities. Patterns of infrastructure initiatives like the construction of roads and service facilities (such as hotels etc) also often encourage the regional development, which eventually leads to urbanization. The direct implication of such urban sprawl is the change in land use and land cover of the region. Economic growth derives urban expansion in the form of construction of business dwellings, roads and leisure centres etc. and the metropolitan regions face growing of problems of urban sprawl, including decline in natural vegetation, wildlife habitats and agricultural land.

Land loss from agriculture has been the focus of considerable research in India. Loss of agricultural land does not necessarily equate to loss of agriculture industry as land productivity is irrelevant in intensive industries such as poultry and mushrooms etc. Concern has been expressed at the loss of prime land in Lucknow to prevent its permanent loss through subdivision and urban development while other states are considering similar action. The basic objective of land use planning is to devote the land of special qualities for special uses. If the land is suitable for cultivation should be used for cultivation and it is up to the human efforts and needs that they convert the land either in Class I land or Class IV land. Every effort should be made to find the optimal use of land in the national and people interest. Naturally every claimant puts forth his demand as most important. One of the first tasks of the land use planning is to strike a balance between various interests. The multipurpose use of land, where ever possible should be taken into consideration and no piece of land should be allowed as far as possible, to remain vacant or waste land.

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Introduction

Towns and cities are blooming with a change in the land use along the highways and in the immediate vicinity of the city. This dispersed development outside of the compact urban and village centres along the highways in rural countryside is defined as sprawl. (Theobald, 2001)

The direct implication of such sprawl is the change in the land use and land cover of the region. It refers to some type of development with inputs such as loss of agricultural land, open spaces and ecologically sensitive habitats. Landscape changes can be distinguished into conversion from one land cover type into another one and transformations within a given land cover type.

Usually sprawl takes on the fringe, at the edge of an urban area, or along the highways. At the urban – rural fringe, the agricultural land becomes fragmented with farmers unable to take advantage of economies of scale, and land prices have become inflated due to non – agricultural values, so farmers are unable to realize reasonable returns to land. Some of the causes of the sprawl include – population growth, economy and proximity to resources and basic amenities. Patterns of infrastructure initiatives like the construction of roads and service facilities (such as hotels etc) also often encourage the regional development, which eventually leads to urbanization. The direct implication of such urban sprawl is the change in land use and land cover of the region.

Economic growth derives urban expansion in the form of construction of business dwellings, roads and leisure centres etc. and the metropolitan regions face growing problems of urban sprawl, including decline in natural vegetation, wildlife habitats and agricultural land. Land loss from agriculture has been the focus of considerable research in India. Loss of agricultural land does not necessarily equate to loss of agriculture industry as land productivity is irrelevant in intensive industries such as poultry and mushrooms etc. Concern has been expressed at the loss of prime land in Lucknow to prevent its permanent loss through subdivision and urban development while other states are considering similar action. Residential subdivision and hobby farm development are often blamed for loss of both prime land and agricultural industry, but the true extent of such loss in Lucknow is questionable

Thus, the amount of rural land lost to sprawl is the key issue from an environmentalist and agricultural perspective but the amount of rural land loss and urban expansion is also significant to the quality of life of urban dwellers.

They may in fact, foster retention of otherwise non – viable agriculture in a region but carry greater risk of land and environmental degradation. Changes to agricultural land use with urban and residential encroachment often result in the intensification of agricultural industry and new, financially viable alternative forms of agriculture.

Limiting subdivision of agricultural land could, thus, inhibit the emergence of new forms of agriculture that might contribute significantly to regional socio – economic development. Intensive industries are less dependent on land quality but often create undesirable impacts and conflict when co – located with rural residencies. Hence the case for preservation of prime land in peri – urban areas solely for its traditional agricultural value can not be sustained. Data on the extent of loss of both prime land and agricultural industry in peri – urban areas is limited but both have been major issues fro local government.

Urban Encroachment on Agricultural Lands in Lucknow

Demographic data for the Lucknow Urban Agglomeration and Lucknow City from Census 2001 and other available documents was analyzed to understand the growth patterns (Table 1). The Master Plan 2021 is the basis of information for the projected population and land use in peripheral areas where considerable private development has been taking place. Growth rates have been arrived at through projecting geometric growth, arithmetic growth and incremental growth rate methods and adding an additional population at 100,000 every five years fro additional areas that might get incorporated within the city. This seems a conservation estimate, however, given the current pace of real estate development and the intention of government to attract new investment in Lucknow.

TABLE: Population Projection of Lucknow (2006-2021)

	Projection Type	Years			
		2006	2011*	2016*	2021*
	Lucknow City				
1	Geometric Rate	2582190	3021162	3534760	4135669
2	Arithmetic Rate	2501000	2795000	3089000	3383000
3	Increment Rate	2607791	3081366	3640942	43832137
	Average Population Growth In Lucknow City	2563660	2965843	3421567	3940269
	Lucknow Cantonment	60000	60000	60000	60000
	Lucknow District	2624000	3026000	3482000	4000000

Source: Master Plan 2021, * Projected Population

Urban growth currently is largely on par with other cities of similar size, and is anticipated to be slightly faster in the immediate future. This needs to be considered in city planning.

Although the city has potential positive economic comparators, such as its heritage and educational institutions, lack of infrastructure and business concerns about the regulatory have been limited the economic base, which has meant inadequate employment opportunities and limits on the local government and service agency revenue bases. The percentage of people engaged in the tertiary sector is higher than the other sectors. Although literacy levels among the work force are high, qualifications in technical areas is limited. City has a significant slum population with slums more or less uniformly distributed across the city and marked b low levels of access to basic infrastructure.

The Master Plan 2021 shows a dramatic increase in land for residential use although it does not take into consideration the real estate boom underway by private developers. New development areas have not kept pace with levels of infrastructure development. Pollution – air, noise and that of the river Gomti are areas of critical concern.

Lucknow has a rich heritage that has been compromised by the pressures of urbanization – mainstreaming heritage with modernization is a challenge. Inner city areas

are characterized by urban decay. There are several water bodies within the city limits that have been encroached, reclaimed and polluted through the discharge of sewage.

The Master Plan 2021, which is the source of the information, estimates that Lucknow covered an area of 16,270 hectares in 2004 – 05. Compared to 1987 when the area was estimated at 9170 hectares, there has been a 77.4% increase in the total area in 2004 – 05.

Trends in land uses has been interesting, especially the fact that residential use has grown dramatically in comparison to all other uses, although there has also been notable growth in commercial, industrial and public service land use (Table 6).

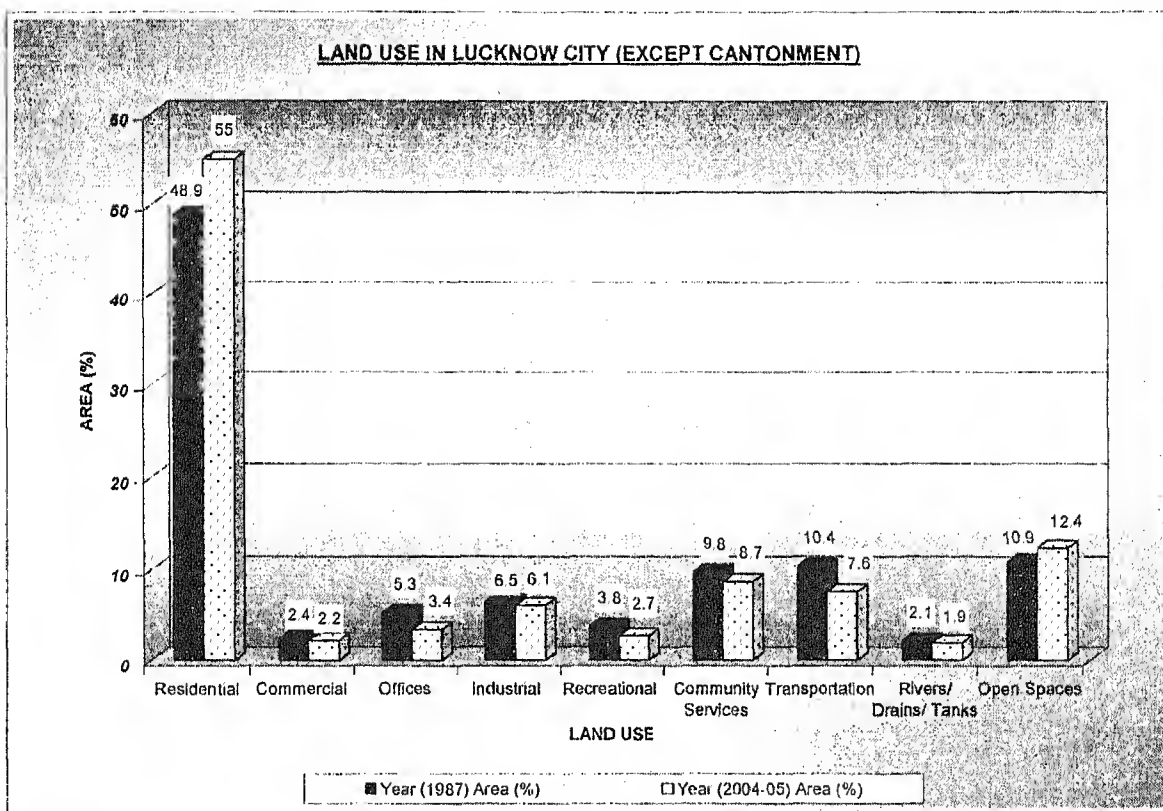


Figure- 1

TABLE- LAND USE IN LUCKNOW CITY (EXCEPT CANTONMENT) [1987- 2005]

Land Use	Year (1987)		Year (2004-05)		Growth Percentage
	Area (Hectares)	Percent	Area (Hectares)	Percent	
Residential	4485.98	48.9	8945	55	99.4
Commercial	223.77	2.4	360	2.2	60.9
Offices	474.69	5.3	560	3.4	18
Industrial	596.22	6.5	990	6.1	66
Recreational	346.48	3.8	435	2.7	25.5
Community Services	902.02	9.8	1410	8.7	56.32
Transportation	952	10.4	1240	7.6	30.25
Rivers/ Drains/ Tanks	193.66	2.1	310	1.9	-
Open Spaces	996.14	10.9	2020	12.4	-
Total	9170	100	16270	100	-

The demand of land for residential areas is quite enormous, as seen from the above given table that there is an increase in the 99.4% from 1987 to 2004- 05. This exerts a great pressure on the surroundings peri urban land which is very fertile as a result huge amount of land is consumed. This results in the loss of Net sown area as can be noted from the table.

TABLE: AGRICULTURAL LAND USE IN LUCKNOW DISTRICT (1981- 2005)

[AREA IN HECTARE]

Year	Reported Area	Forest	Net Area Sown	Area Sown More Than Once	Gross Cropped Area	Cropping Intensity
1981	250757	9472	143270	58620	201890	141
1991	252162	9472	145933	56524	202457	138.73
2005	251845	11726	138148	80072	218220	157.96

SOURCE: Various Statistical Abstracts, UP

It is clear from the table 3, that cropping intensity has increased quite considerably during the period of 1991 to 2005. It was 138.73 in 1991 while it increased to 157.96 in 2005. Grossed cropped area also increased from 201890 hectares in 1980 to 218220 hectares in 2005. But what was more altering is the reduction in the net sown

area. Net sown area showed an increase from 1981 – 1991 and thereafter it reduced considerably during the last decade 1991 – 2001. Actual net sown area at present is 138148 hectares.

This might be attributed to the fact that Lucknow City has grown tremendously over the period of 3 decades. As stated earlier, large area under fertile land is consumed up by the expansion of the city on its periphery. There has been an increase of 77.4% in the total area in 2004 – 05. Total area was 9170 hectares in 1987 while it became 16270 hectares in 2004 – 05.

No of villages in 1981 were 917 in total (inhabited and uninhabited). While it reduced to 835 in 2001 census year. (Table 8)

TABLE: Number of Villages and Towns in Lucknow (1981-2001)

Year	Villages			Towns
	Inhabited	Uninhabited	Total	
1981	899	18	917	10
1991	824	10	834	8
2001	822	13	835	8

SOURCE: Statistical Abstracts, UP

Conclusion

India is one of the world's biggest countries with 328.73 million hectares of geographical area or 32.8 lakh sq kms. The vastness of India along with substantial cropland gives the general feeling for the abundance of land and the concern for at least preserving the land is totally lacking. The rapid growth of population, changes in social and economic structure and trends of urbanization in the last few decades has made researchers to think over the judicious use of land based on land capability survey and analysis it is now becoming very difficult for the country to afford to engage the fertile crop land in the name of unplanned town development. Especially, the rate at which the crop land is being converted for built up and non- built up development due to expansion of settlement. The crucial fact is that "land is finite" and the converted land can not be recovered back in future. The present study raises many issues with loss of crop land use to urban expansion:

- 1) **Urban shadow Effect:** the study area has recorded a major loss of agricultural land mainly due to urban shadow impact because it is the capital town, thickly populated state with poverty and high level of urban migration. Especially the conversion of agricultural lands to tree plantation and vacant land fort the glaring examples of it. Farmers living in the vicinity of the cities face problems resulting in either lower yields or lands not farmed, even though the land is not actually converted to urban uses. Farmers of fringe areas are subjected to present or short term future development pressure; begin to devote less capital fro farm maintenance and management. The productivity of the land begins to decline which ultimately results in selling these lands to property dealers. They do not maintain it as agriculturally productive land, but allow it to remain idle until such time as advancing suburbs justily transforming it into suburban areas. The net effect of these forces cause a much greater loss of crop land to urban uses then the figure normally given for land transferred to urban uses indicate.
- 2) **Quality of Crop Land Converted:** not all land is equally suitable for farming purposes. In India especially in Indo- Gangetic region, almost the whole land is flat well drained, adequately watered and fertile land, which makes it very suitable for agricultural activities, but these same characteristics also make it a prime land for the development of the settlement in this region. The study area also recorded conversion of 1/3rd of the prime land with Class I capability class indicative of the disproportionate concentration of development on good quality agricultural land. The significance of this is obvious. The land in Class I yield a much higher return for the same inputs of labour capital. These are the lands which are of primary importance in maintaining the agricultural productivity.
- 3) **Cost of Crop Land Conversion:** A more significant factor intensifying the problem of loss of prime crop land is associated with the cost of such land conversion. The cost are two fold and are related to the actual cost of replacing lost farmland as well as to government programs that prompt urban expansion and encourage loss of cropland. When the prime crop land is lost,

the value of the crop production is immediately foregone. The cost to replace that land is fairly substantial. The government makes effort to bring some additional land for agricultural uses by reclaiming wasteland but the question is how much and at what cost.

Land use is not static, but a dynamic interactive system. Changes are occurring in each of the category of land use for example from Class I land to Class VII land which have an impact on the residents of the nation both at local as well as regional level. Urban sprawl with its attendant destruction of prime cropland seems far severe than popularly supposed. Although the urban expansion can not be restricted, with proper management and planning, we can restrict and direct this expansion in desired and sustainable ways, and protect the fertile agricultural lands. It needs stricter implementation of agricultural land conversion loss. The farmers should be provided some incentives to remain in farming activities, as this is the only way to control migration of rural population to urban centres. Even they should be encouraged to go back to farming activities and this is the only way to restrict conversion of cropland into vacant land. Land capability maps should be prepared and be considered for developing national land utilization for urban expansion. These maps are more relevant in developing countries like India, where planned and unauthorized urban expansion is very common in smaller towns. The urban and regional planners should make sure that urban expansion would not be in any case on Class I land and it should be diverted towards Class V land.

The basic objective of land use planning is to devote the land of special qualities for special uses. If the land is suitable for cultivation should be used for cultivation and it is up to the human efforts and needs that they convert the land either in Class I land or Class IV land. Every effort should be made to find the optimal use of land in the national and people interest. Naturally every claimant puts forth his demand as most important. One of the first tasks of the land use planning is to strike a balance between various interests. The multipurpose use of land, where ever possible should be taken into consideration and no piece of land should be allowed as far as possible, to remain vacant or waste land.

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**URBAN SPRAWL AND CHANGING PERIURBAN
SCENE AROUND VARANASI CITY**

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Urban sprawl and changing Periurban scene around Varanasi City

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Abstract. The area surrounding the city is a subject of constant threat and encroachment by the urban sprawl. This process leads to create a transitional belt between the city and the rural areas, known as periurban (suburban). The growing pressure of urbanisation frequently results in sub-standard and transitional lifeways. A pull factor in this respect is that industries often are located in the periurban areas, providing employment to nearby inhabitants. Thus periurban areas function as a buffer zone for cities absorbing migration on the one hand, and locate industrial types of economic activities on the other. In the process, land use changes rapidly from rural, agricultural to urban types and both urban and rural lifestyles occurring in these areas, in varying degrees. There are a number of specific environmental threats to vegetable yield, quality and safety in periurban areas. The periurban interface represents areas of dynamic institutional and environmental change. The increasing impact of the urban sprawl introduced a new look to intensive agriculture to supply the demand of the city turning to commercialisation of agriculture. There are examples of young farmers who practice intensive and commercial farming, and also engage themselves in other part-time jobs available in the suburban areas or the city. The paper deals with a critique of the Master Plan of Varanasi (1991-2011) and a case study of periurban area, Chamaon Gram Sabha, lying in the central part of India (the Ganga Valley). The longitudinal study from 1954 to 2007 of the Chamaon GS presented here to see the trends and patterns of transformation of village land and life to urban scene, emphasising the contestation of natural and cultural heritage. Focus is also thrown as to how the urban and periurban impacts and encroachments can transform the land, life and agricultural heritage in the rural India. It is obviously noted that the area surrounding the city is a subject of constant threat and encroachment by the urban sprawl. This process leads to create a transitional belt between the city and the rural areas, known as periurban (suburban). The growing pressure of urbanisation frequently results in sub-standard and transitional lifeways in these areas. The periurban interface represents areas of dynamic institutional and environmental change. The increasing impact of the urban sprawl introduced a new look to intensive agriculture to supply the demand of the city turning to commercialisation of agriculture.

1. Orientation and Background

The area surrounding the city is a subject of constant threat and encroachment by the urban sprawl. This process leads to create a transitional belt between the city and the rural areas, known as periurban (suburban). The growing pressure of urbanisation frequently results in sub-standard and transitional lifeways. A pull factor in this respect is that industries often are located in the periurban areas, providing employment to nearby inhabitants. Thus periurban areas function as a buffer zone for cities absorbing migration on the one hand, and locate industrial types of economic activities on the other. In the process, land use changes rapidly from rural, agricultural to urban types and both urban and rural lifestyles occurring in these areas, in varying degrees. There are a number of specific environmental threats to vegetable yield, quality and safety in periurban areas. The periurban interface represents areas of dynamic institutional and environmental change. The increasing impact of the urban sprawl introduced a new look to intensive agriculture to supply the demand of the city turning to commercialisation of agriculture. There are examples of young farmers who practice intensive and commercial farming, and also engage themselves in other part-time jobs available in the suburban areas or the city.

2. Varanasi Mater Plan and Perspective of Periurban area of Chamaon GS

The Varanasi Development Region (VDR; 82° 48'E – 83° 13'E longitudes and 25° 08'N – 25° 30'N latitudes; 477.34 km²) is defined as the “area to be selected for the expanded Master Plan in future”. The present Master Plan of Varanasi (1991-2011) has been prepared on February 26, 1996. Together with urban areas of Varanasi Urban Agglomeration (VUA; 82° 56'E – 83° 03'E and 25° 14'N – 25° 23.5'N; area 112.26 km²) and Mughalsarai Municipal Board, the VDR includes 460 villages of Varanasi and 141 villages of adjacent Districts of Chandauli and Mirzapur. The VUA forms the core, while the boundary of VDR marks the periphery.

In 1982 the Varanasi Development Authority (VDA, formed in 1974) made an assessment of the earlier plans of the city. And, under its direction, the Town & County Planning Organisation, TCPO, prepared a comprehensive Varanasi Master Plan (VMP) 1991-2011, during which time the population of Varanasi Agglomeration was expected to double of the 1991. This Plan was submitted to the government of Uttar Pradesh in February 1996, and after approval it returned back for implementation in August 2000; simply it took 4½ years to get it approved!

The five-tier areal units are defined on the basis of administration and planning strategy, taking Varanasi Development Region, VDR (as in Master Plan projection for 2021), recording 477.34 km², defined as the “area to be selected for the expanded Master Plan in future, 2021”, constitutes four tiers areal units (cf. Fig. 1) in descending order as Varanasi Periurban (suburban) area (298.07 km²), Master Plan Projected Area (179.27 km²; planned for 2011), Master Plan Operative Area (144.94 km²; as extended in 1991), Varanasi Urban Agglomeration (115.27 km²; expanded city limit in 1981), and Varanasi City Municipal Corporation (84.55 km²; as followed since 1971). The VDR includes 460 villages of Varanasi and 141 villages of adjacent Districts of Chandauli and Mirzapur.

Under the Master Plan 2011 the expanded area proposed for the Greater Varanasi is 179.27 km², however no way the land use categories fit to the standard norm of ecological balance. The most noticeable change during 1991-2011 plan is expansion of the area of the city (+112%). According to the New VMP the major drastic increase will be under land category of Govt. and Semi-Government uses (+390.50%) and public and community facilities (+190.63%), while in agriculture and open space only there will be 7.55% of increase (cf. Table 1). This catastrophic change spoils the ecological system of the land use; the most crucial group is park and open ground that records decrease of over 60% in comparison to 1999. The increasing pace of population results to increase area under residential uses up to 253.63% over 1988. This indicates that agriculture in the peri-urban areas would loss its areal extent. Nevertheless to get more economic benefits, there will be more intensive, market-oriented and fertiliser-based farming, especially cash crops like vegetables. Considering the increasing pressure of population the area of open space is expected to decrease at -52.54%. However at the marginal areas, like Chamon Gram Sabha, the commercial gardening and vegetable farming have already taken turn in competitive manner to support the increasing demand due to urban growth and sprawl.

Table 1. Varanasi Master Plans, MP: Land Use, I: 1961-91, and II: 1991-2011

Se	Land Use Category	1988		I: MP, as in 1999		II: MP, as in 2011		Change, I-II, %
		Area, ha	% of area	Area, ha	% of area	Area, ha	% area	
1.	Residential	2,615.64	46.16	5,457.24	37.65	9,254.61	51.62	+ 69.58
2.	Commercial	176.08	3.11	475.10	3.28	618.23	3.45	+ 30.13
3.	Industrial	195.31	3.45	981.37	6.77	656.19	3.66	- 33.13
4.	Public & Community facilities	261.05	4.61	450.42	3.11	1,309.07	7.30	+ 190.63
5.	Recreation (Park/ Open ground)	53.04	0.94	2,705.76	18.67	948.47	5.49	- 64.95
6.	Services & Utilities	----	----	----	----	103.97	0.58	---
7.	Govt. & Semi-Government	56.69	1.00	292.18	2.01	1,433.15	7.99	+ 390.50

8.	Tourism (area) & Heritage zone	---	---	---	---	423.73	2.37	---
9.	Transport & Communication	914.30	16.13	1300.27	8.97	1,460.35	8.15	+ 12.31
10.	Other (agriculture & open space)	1,393.79	24.60	2,832.06	19.54	1,683.45	9.39	- 40.56
	TOTAL Area	5,665.90	100.00	14,494.40	100.00	17,927.22	100.00	+ 23.68

(Source : *Varanasi Master Plan—2011*. Varanasi Development Authority, & Town & Country Planning Organisation, Varanasi Uttar Pradesh. 13 July 2001; 50pp + 1 Map; ref. page 5)

Another change is that farmers today practise more intensive and productive agriculture than previously. Production in rice and wheat has doubled since the farmers changed to so-called *high yield varieties* (HYV). Compared to the old varieties HYV crops demand plenty of water, so irrigation has been extended in the area. There is one government-owned tube-well and 15 privately-owned tube wells in the area. Most fields in the area can be irrigated from these tube wells. However, presently farmers suffer by interruption and irregularity of electricity supply.

Since early 1980s the expansion of Varanasi city has not only brought about external job opportunities for men in the area but also an increase in demand for farm produce; farmers in Chamaon Gram Sabha have been able to profit from this increased demand. One of the most profound changes in agriculture is that farmers in the area have altered their production from subsistence to a more commercialised farming; the demand for farm produce at the markets in Tarna, Shivpur and Varanasi nowadays determine the farmers' choice of crops. This shift of production is not unique for the farmers in CGS; similar alterations in production are also noticed in the neighbouring villages.

Changes in agriculture have also led to increased expenses for farmers. Today farmers have to purchase seed, fertiliser and pesticide; they also have outlays hiring tractors, getting fields ploughed, and transporting the produce. During 1950s and 1960s farmers used seeds from the previous year's harvest, animal manure as fertiliser, and did the ploughing with the help of oxen. A small farmer claimed that the rising costs were eating up the profits from the rise in yield. However the intensification of agricultural production has been economically profitable for many, especially for the younger and better educated farmers who use new methods (Lejonhud 2003: 149). The increased demand for farm produce from Varanasi city is not the only cause behind the changes in farming in Chamaon Gram Sabha. Part of the transformation in agriculture has been facilitated and stimulated by political decisions and state interventions. Other changes in the area could be related to various government programs aiming to improve living conditions in the rural area.

3. A Periurban place, Chamaon Gram Sabha: Geographical personality

Chamaon Gram Sabha (Fig. 2) is a viable unit of the "village council" defined by the government programme of village development in line with the old tradition of co-operative development called Panchayat (literally five together), introduced in 1952 under the first land reformation in the Indian Republic. Since 1956 CGS consists from east to west of three village-settlements along the Varana river, which demarcates the southern boundary: Chamaon, Pachhimpur, and Shahabuddinpur, lying at 25°21' north and 82°58' east, located at a distance of about seven kilometres from the main city of Varanasi. The first election to the village council was held in 1958. CGS is a part of the Harahua Development Block, which is part of Varanasi District. It is through the Development Block that the government's village development programmes are canalised to the village level. There are thirteen built/occupancy units in different directions dominated by a particular caste. The total area of CGS is 181.3 hectares.

In 1977 CGS has already been incorporated in the regulated area of the Greater Varanasi Municipal Corporation, and recently in 2001 given emphasis as part of the future Master Development Plan for Varanasi. Nevertheless CGS has maintained its village character like that of other Indian villages. The village lies on the alluvial plains of the Ganga valley with little variation in height; the average height is 80m. Based on the texture of loamy soil (i.e. sand, silt, and clay), the village has four types of loamy soils: silty loam in the middle and eastern part, sandy loam in most of the parts, the clayey loam in patches along the Varana river, and some patches of sandy soil. The climate of the area is of the monsoon type, recording three seasons of summer, winter, and rainy (cf. Singh & Singh 1977: 3-5).

It appears from the historical records that until the late 12th century this area was occupied by a non-Aryan race, known as the Soiris, who after the Kaushik Rajputs had taken control of the region. Some of them accepted the sovereignty of the Kaushik and later on started calling themselves Rajputs. Close to the Varana river one can still see the ancient mound of original settlers. Until the middle of the nineteenth century most parts of this rural area were woodlands and pastures. Animal husbandry was the main occupation (cf. Singh 1975: 139). The old people still tell stories of settling in the historical past.

4. Land ownership

The power and importance of land holding has been well recognized. As Mandelbaum (1970: 208) states, "Local power flows mainly from land. Land is the prime good in this agrarian setting; land is the main source of wealth; land is a main need for a *jati* (caste) on the rise". Out of a total of 389 households (families), 15.7 % are landless, and 71.5 % own less than 2 hectares of land. Rajputs record a population of a little less than one-tenth. However, they own a little more than one-third of the land. At the other extreme, it is notable that the Chamar (formerly the leather-worker caste) in 2007 recorded a population of 22.6 % of the total, but they own only 2.2 % of the land (Tables 2 and 3). Families belonging to scheduled castes like the Chamar, Musahar, Kumhar, Pasi and Gonr own little or no land at all. About 2/3 of the families in CGS own enough land to be self-sufficient in food. Optimally, a family of five members needs at least 0.25 ha to be self-sufficient in food.

Table 2. Population and caste structure in CGS (Singh & Singh 1977 and personal surveys).

Caste	Total Population		% of Population		Variation, % (+)	Caste rank, social hierarchy
	1977	2007	1977	2007		
1. Brahmin	29	69	2.3	2.4	137.9	Higher
2. Rajput	121	291	9.7	10.1	140.5	---,, ---
3. Kayastha	79	135	6.3	4.7	70.9	---,, ---
4. Ahir	77	197	6.2	6.9	155.8	Middle
5. Kurmi	362	786	28.9	27.4	117.1	---,, ---
6. Soiri	82	212	6.5	7.4	158.5	---,, ---
7. Lohar	90	209	7.2	7.3	132.2	Servants/ Craftsmen
8. Kumhar	24	40	1.9	1.4	66.7	---,, ---
9. Gareria	26	52	2.1	1.8	100.0	---,, ---
10. Gonr	22	37	1.8	1.3	68.2	---,, ---
11. Chamar	278	685	22.2	23.9	146.4	Low caste
12. Pasi	6	9	0.5	0.3	50.0	---,, ---
13. Musahar	56	146	4.5	5.1	160.7	Semi-tribal
<i>Total</i>	1,252	2,868	100.0	100.0	129.1	---

Table 3. Land ownership in Chamaon Gram Sabha (Singh & Singh 1977 and personal surveys).

Caste	Total land ownership (ha)		% of land ownership		Variation, %
	1977	2007	1977	2007	
1. Brahmin	6.83	5.23	5.2	4.2	- 23.4
2. Rajput	48.81	43.67	37.0	35.2	- 10.5
3. Kayastha	11.38	8.32	8.6	6.7	- 26.9
4. Ahir	11.64	11.23	8.6	9.1	- 3.5
5. Kurmi	32.63	34.54	24.7	27.8	+ 5.8
6. Soiri	10.05	9.63	7.6	7.8	- 4.2
7. Lohar	3.84	3.56	2.9	2.9	- 7.3
8. Kumhar	0.04	0.05	0.0	0.0	+ 25.0
9. Gareria	2.82	3.36	2.1	2.7	+ 19.1
10. Gonr	---	0.38	---	0.3	---
11. Chamar	2.06	2.94	1.6	2.4	+ 42.7
12. Pasi	---	0.35	---	0.3	---
13. Musahar	2.02	0.79	1.5	0.6	- 60.9

<i>Total</i>	* 131.87	124.05	100.0	100.0	- 5.9
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*) In addition to this, 57 hectares in the area are owned by people from outside, primarily farmers from surrounding villages.

These contrasting and complex patterns at different levels and different contexts make the Indian village an unique unit of habitat. In a mosaic of socio-cultural diversities common life is regulated by an interrelated web of taboos, traditions and religious systems as well as the economic structure, transformation, ways and means of prosperity and development. This system makes the character of the habitat and mental set-up of the people living there.

5. Changing Land use and Agricultural scenario

Agriculture is the base of the village economy, which still dominate the scene, still covering about 72 per cent of total land area (181.3 ha, in 2008). Those land earlier were not suitable for agriculture (i.e. cultivable barren, current fallow, and other fallow), are used for orchard and gardens, and also for seasonal vegetable gardening. The guava orchards grown only since last twenty years, and are flourishing quite well along the Varana river. This area was earlier cultivable barren, but now transformed into commercial gardening. The un-irrigated area reduced to half during the last 25 years (cf. Table 4). In 1974 half the cropped area was un-irrigated, but it reduced to a little over 13 per cent in 2008. Formerly the CGS was known for eggplant, however now most of the neighbouring villages are producing and thus the original specie of CGS is now lost. Agriculture is based on three growing seasons, characterised by four main crops. Since last ten years the four prevalent crops, i.e. wheat (39%), paddy/rice (24%), vegetables (10%), and maize (6%) cover most of the gross cropped area (197 ha, in 2008). Among the vegetables grown notable are egg plant, cauliflower, potato and green beans. The land consolidation has introduced a new look to intensive agriculture. Due to the impact of commercialisation of agriculture, different groups of farmers have experienced an economic growth during the 1990s. There are examples of young farmers who practice intensive and commercial farming, and also engage themselves in other jobs.

Table 4. Chamaon Gram Sabha, Varanasi, 1954 - 2008: Land use pattern.

Area, ha (hectare) (a)	1954		1974		1994		2004		2008	
	Area	% of a	Area	% of a	Area	% of a	Area	% of a	Area	% of a
Land Use	1	2	3	4	5	6	7	8	9	10
1. Area	181.3	100.0	181.3	100.0	181.3	100.0	181.3	100.0	181.3	100.0
2.	35.5	19.6	35.6	19.6	24.2	13.3	16.8	9.3	12.3	6.8
3.	23.4	12.9	18.7	10.3	13.5	7.4	8.3	4.6	5.2	2.8
4.	11.3	6.2	10.7	5.9	6.2	3.4	3.8	2.1	2.1	1.2
5.	4.8	2.6	2.4	1.3	2.4	1.3	2.0	1.1	1.9	1.0
6.	0.8	0.4	0.8	0.4	7.5	4.1	10.2	5.6	11.7	6.5
7.	5.3	2.9	3.2	1.7	3.6	2.0	6.8	3.7	7.3	4.0
8.	4.8	2.6	5.3	2.9	5.7	3.1	7.7	4.2	9.6	5.3
9. Net AS	95.4	52.6	104.6	57.7	118.2	65.2	125.7	69.3	131.2	72.4
(a)	13.9	14.6	22.2	21.2	33.2	28.1	58.4	46.5	65.7	50.1
(b)	35.7	32.7	60.9	48.0	117.9	77.9	155.9	84.7	169.9	86.4
(c)	73.6	67.3	65.9	52.0	33.5	22.1	28.2	15.3	26.8	13.6
(d) Gross A	109.3	100.0	126.8	100.0	151.4	100.0	184.1	100.0	196.7	100.0

1. Total Reported Area. 2. Cultivable barren. 3. Current Fallow. 4. Other Fallow. 5. Land under Water. 6. Non-agricultural uses. 7. Orchards, gardens. 8. Settlement, & paths. 9. *Net Area Sown*: (a) sown > than once, (b) Net Irrigated area, (c) Unirrigated Area, (d) **Gross Cropped Area**.

(Source: Revenue Records at Varanasi Tahsil, *khatauni*, & village records; collation by Singh)

One of the obvious major changes in agriculture during recent decades is the market orientation. The farmers in the area are very well aware of the market prices and changes in the market prices that affect their choice of produce. The production of eggplant (brinjal) can be taken as an example of commercialisation in agriculture. Formerly, CGS was very famous for its successful production of eggplant. CGS was even called the 'eggplant village' ("*bainganwalla gaon*"). The soil in Chamaon was very suitable for this kind of vegetable. Today, with the help of chemical fertilisers, other farmers in the surrounding areas are also able to grow eggplant. As a result of the increased output of eggplant, the market price has fallen. In response the farmers in CGS changed their production and are replacing the eggplant with, for instance, green peas, which give higher profit.

Due to the impact of commercialisation of agriculture and increasing demand from the growing urban population, different groups of farmers have experienced an economic growth during the 1990s through change in the selection of crops and expansion of cultivated area. The most successful in economic terms were the medium and small farmers mainly due to their concentration on growing vegetables. Big farmers are producing more grains, which is relatively not so profitable compared to vegetables. The saving from the other jobs supported the poor people to purchase some piece of land and to perform farming as part-time job. In 1954 around 59% household were landless which fell down to around 7% in 2008 (see Table 5). The two big landlords (1977) have sold their land lying at good distance from their main houses. Moreover, many of the rich landlords get tube-well installed at their plots and engaged in intensive farming. This practice has encouraged them either to sale their land, which are unmanageable for them, or considered not viable for extensive farming. A huge mass of marginal farmers has grown up since 1974, mostly because of land transaction by the earlier poor farmers and landless labourers (cf. Singh and Sen, 2001).

Another change in recent years has been the scarcity of farm workers. Males who belong to the scheduled caste who earlier worked on the farmers' land have recently started working in small towns and in Varanasi City, where they earn more and are paid in cash instead of in kind. However, the women belonging to the scheduled caste still work as day labourers in the area. The women are less mobile because of their responsibility for the children and the household.

6. Land ownership and Consolidation of fields

The power and importance of landholding has been well recognised, as Mandelbaum (1970: 208) states, "Local power flows mainly from land. Land is the prime good in this agrarian setting; land is the main source of wealth; land is a main need for a *jati* (caste) on the rise". Of course after passing sixty years of independence and fifty-five years of land reforms act, still landholding plays an important role. The increasing pace of urban sprawl pushed the land prices very high even in the surrounding periurban areas. In Chamaon Gram Sabha, at present out of 445 total households (families), about 7 % are landless, and 79 % own less than one hectare of land. Rajputs record a population of a little less than one-tenth. However, they own a little more than one-third of the land. Taking India as a whole, it is observed that big top 5 per cent of landlords account for about 40 per cent of total holdings. Even today, majority of agricultural labourers have no work for about 100 days per year (cf. Singh, 1999: 63). At the other extreme, it is notable that the Chamar (formerly the leather-worker caste) records one-fifth of total population, but they own only 2.4 % of the land (Table 5), recording increase of 42.7% over 1977. For those families earlier landless, possession of land is a mark of identity and a sign of upward mobility. Families belonging to scheduled castes like the Chamar, Musahar, Kumhar, Pasi and Gonr own little land, and perform their subsistence on the manual labour and rent-basis farming. About 2/3 of the families in CGS own enough land to be self-sufficient in food at the minimum of requirement. For an optimal family of five members at least 0.25 ha is required to be self-sufficient in food. These contrasting and complex patterns at different levels and different contexts make the Indian village a unique unit of habitat. In a mosaic of socio-cultural diversities common life is regulated by an interrelated web of taboos, traditions and religious systems as well as the economic structure, transformation, ways and means of prosperity and development. This system makes the character of the habitat and mental set-up of the people living there.

The Consolidation Act was passed in 1956 by the government of India. The plot pattern in the traditional Indian village was widely scattered and each plot size very small. A farmer could have his land holdings of a few hectares divided into more than 20 different plots, scattered in the village he lives, or in other villages. The purpose of the Consolidation Act was to reduce the number of plots each farmer had and make each of the plots larger. The aim was for big

farmers to have their plots distributed in at least at three places, medium farmers in two places, whilst small farmers will have their landholdings in just one or two places. In this area farmers are divided into four groups according to the size of land holdings: first grade (big farmer) who holds more than 2ha of land, second grade (medium farmer) possessing land between 1ha to 2ha, third grade (small farmers) holding below 0.4ha to 1ha, and fourth grade (marginal farmers) holding less than 0.4ha (Table 6). It is not only the size of the land holding that matters but also perception of the family's status that played a strong role during the British period in which big landlords were given status and power of control. The most successful in economic terms were the medium and small farmers mainly due to their concentration on growing vegetables. Many big farmers those earlier producing more grains, during last ten years realised that it was not profitable in comparison to vegetables, resultantly they now shifted to vegetable farming. The saving from the other jobs supported the poor people to purchase some piece of land and to perform farming as part-time job (Singh and Sen 2001: 68).

Table 5. Chamaon Gram Sabha, 1954 - 2008: Households (hh) by land ownership

Land ownership size		1954		1974		1994		2004		2008	
Standard Bigha, bh	hectare, ha	Total hh	% of hh	Total hh	% of hh	Total hh	% of hh	Total hh	% of hh	Total hh	% of hh
landless	landless	98	58.7	85	33.7	67	18.0	46	10.8	32	7.2
< 1.6	< 0.4	18	10.7	88	34.9	133	35.8	185	43.3	195	43.8
1.6 - 4	0.4 - 1	17	10.2	29	11.5	121	32.6	143	33.5	158	35.5
4 - 8	1 - 2	21	12.6	31	12.3	37	10.0	47	11.0	56	12.6
8 - 12	2 - 3	6	3.6	13	5.2	11	3.0	6	1.4	4	0.9
12 - 16	3 - 4	3	1.8	2	0.8	1	0.3	0	----	0	----
16 - 20	4 - 5	2	1.2	2	0.8	1	0.3	0	----	0	----
20 - 32	5 - 8	1	0.6	1	0.4	1	----	0	----	0	----
> 32	> 8	1	0.6	1	0.4	0	----	0	----	0	----
Total	Total	167	100.0	252	100.0	372	100.0	427	100.0	445	100.0

(Source: Revenue Records at Varanasi Tahsil, *khatauni*, & personal surveys; collation by Singh.

NOTE: 3.95 Standard Bighas equal to 1 ha; and 1.60 Bighas equal to 1 Acre, i.e. 0.40469 ha)

Table 6. Distribution of field plots in Chamaon Gram Sabha by size, 1954 to 2008.

Size of plots, in hectares, ha	Field plots, 1954		Field plots, 1974		Field plots, 1994		Field plots, 2004		Field plots, 2008	
	No.	%age	No.	%age	No.	%age	No.	%age	No.	%age
less 0.10	452	46.9	387	44.7	186	24.3	141	21.0	138	20.2
0.10-0.20	335	34.7	304	35.1	356	47.4	294	43.8	283	41.5
0.20-0.30	109	11.3	107	12.4	127	17.1	132	19.7	144	21.1
0.30-0.40	27	2.8	29	3.3	43	5.3	47	7.0	53	7.7
0.40-0.50	31	3.2	26	3.0	32	4.0	39	5.8	42	6.2
0.50-0.60	6	0.6	5	0.8	5	0.7	7	1.0	9	1.3
0.60-0.70	2	0.2	3	0.3	4	0.5	5	0.7	6	0.8
0.70-0.80	2	0.2	3	0.3	3	0.4	4	0.6	5	0.7
+ 0.80	1	0.1	1	0.1	1	0.3	3	0.4	3	0.5
Total	965	100.0	865	100.0	741	100.0	672	100.0	683	100.0

(Source: Revenue Records at Varanasi Tahsil, *khatauni*, & personal surveys; collation by Singh.

The struggle for survival, more individualist perspective and involvement in agriculture as part-time job, supported landless people to purchase land, while this encouraged big farmers to sale their land (Singh and Sen 2001: 69). This tendency is obviously marked by the comparison of statistical data of 1974, 1994, 2004 and 2007 (cf. Table 5). Of course, the land consolidation has introduced a new look to intensive agriculture, the encroaching impact of urban sprawl has encouraged to vegetable farming (green peas, beans, okra, etc), which is more profitable. This tendency further encouraged young farmers to practice intensive and commercial vegetable

farming, and apart from farming engage themselves in other jobs (cf. see the narrative of farmers of various group in Gustafsson, et al, 2000: 211-213). In CGS land consolidation has been carried out in Pachhimpur and Shahabuddinpur but not in Chamaon. As shown in Table 6, consolidation has resulted in the number of plots being reduced by 293, from 965 in 1954 to 672 in 2004. However, in the last three years the family disputed promoted further fragmentation of the field plots, resulting to increase of plots – reaching 683 in 2007. The most common size of plot since 1994 has been between 0.10-0.20 ha compared to earlier years when the most common size of plot was below 0.10 ha. More commonly the size category of 0.20-0.30 ha has constantly recorded increase the number of plots and their percentage frequency. This size suits for family level management together with keeping involved in other jobs too.

7. Towards Conclusion: From Perspective to Prospect

As obvious, the traditional Indian village has been described as a self-sufficient unit where everything was run in its own way, however today, the situation seems to be different, especially in the periurban area. One of the reasons for this change is the new administrative system that the Indian government implemented at the beginning of 1950s after independence in 1947, in addition with the catastrophic increase of population of urban places and their sprawl in the environs. Once the area is delineated as part of the future urban expansion, the system of governance and rural development policy change to cope with urban system of land uses and service delivery. The case study of Chamaon Gram Sabha indicates the problems faced after its inclusion in the Master Plan; in fact, transitory location is the more crucial issue that serves as obstacles for the development.

With the common consensus a spatial development plan was prepared in 1977 (Fig. 3), but no way it has been followed, mainly due to lack of social integrity and sense of community. In 1999 the CGS village council had several sustainable infrastructural plans for the future; but even after a decade (2008) least completion is noted; of course the project is still in process (cf. Table 7).

Table 7. Chamaon GS: The Planned and Present Scenario

<i>The planned attributes, 1999</i>	<i>The present status, April 2008</i>
- Panchayat building	Completed in 2006
- Electricity to Shahabuddinpur (the western part of CGS)	Partly installed, but not operative
- More link roads within CGS	Some pavements and links added
- Toilets	No progress
- Distribution of settlement land	Not functional
- Promotion of the Ambedkar School up to the 8th grade	Achieved, but lacking infrastructure
- Village-based small factories and village crafts to be established (like soap and carpet making)	No progress at all
- Promotion of basic education	A little progress
- Helping weavers to prevent them being exploited by merchants.	No success, No implementation

It has been realised that Indian Village has in many ways maintained its multiplex character of spatiality, cultural integration, social and economic diversity, and traditional continuity, while on the other hand the change is obvious, acceptance and challenges too. Life in the Indian village is in a phase of transition; these are the characteristics of the periurban areas. That is, continuing the age-old traditions and, at the same time, adopting the changing socio-economic system and the values imposed upon by the urban expansion. The cries of the poor masses, distrust of the governmental system and the ideology of gain without work are common expressions of this situation (cf. Gustafsson, et al., 2000: 214). The issue of transition (the periurban characteristics) will be more crucial in the near future: trying to achieve a balance with a foot in both camps, i.e. traditional village life and urban life. The ideology and allocation of funds for development are very far-sighted, but the perspective of conservative thought and the lack of work ethics result into crisis.

The impact of the Master Plan for Varanasi will certainly change village life into an urban pattern though the villagers are neither prepared nor willing to fully accept this. The present life pattern and life philosophies are the product of traditionalism together with recently introduced individualism and consumerism.

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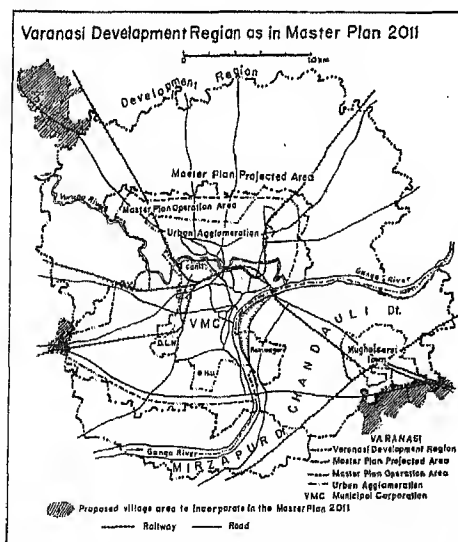


Fig. 1. Varanasi Development Region, as in Master Plan 2011.



Fig. 2. Chamaon Gram Sabha, Varanasi.

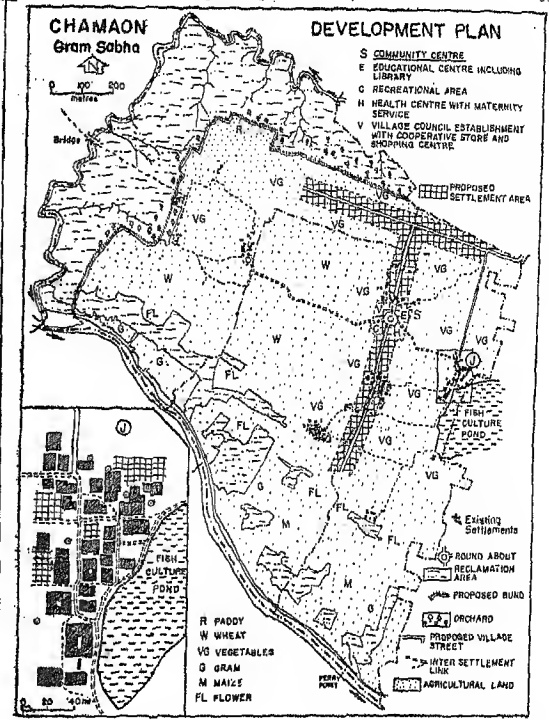


Fig. 3. Chamaon Gram Sabha, Development Plan as suggested in 1977.

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**WHO OWNS THE LAND – A DEVELOPMENT
DEBATE IN SPATIAL PLANNING OF URBAN
FRINGE**

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Who Owns the Land - a Development Debate in Spatial Planning of Urban Fringe

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Abstract

The urban fringe represents a unique set of villages with dual characteristics of rural and urban simultaneously. These villages face peculiar type of problems relating to management and planning of natural resources due to overlapping territories of local bodies and the urban development authorities. In the name of comprehensive development plans, to meet the requirements of growing city population, the development authorities encroach upon the autonomy of village panchayats overlooking the national commitment of decentralized planning and participatory management. The local communities particularly the landless labourers, artisans and marginal and small farmers continue to remain voiceless spectators to the overwhelming hegemony of bureaucratic top-down interventions. The development plans imposed by development authorities in urban fringe villages are contrary to the spirits of 73rd and 74th constitution amendments. It is against the Constitutional intentions to bring about people's participation in governance at grassroots and negates the right to development of local people.

The continued duality in governance in fringe villages is adversely affecting the effectiveness of various poverty alleviation and other development schemes intended to be implemented through village panchayats. This has vividly been observed during the implementation of the NREGS in such villages. The Act makes mandatory that the processes starting from planning to implementation and then monitoring, evaluation and social audit all has to be executed by village panchayats. Thus, the supremacy of PRIs must be recognized to achieve the stated objectives in term of ensuring creating hundred days employment linked with the creation of durable community assets within the village. A number of inadequacies have been reported in the villages lying on urban fringes in this direction. It requires serious research to reconcile the twin objectives of decentralization at grassroots on one hand and developmental planning for the growing cities on the other.

The present paper is an endeavour to study the areas of institutional conflicts between the state governments and the local bodies in urban fringes, its impact on the lives of local communities as well as residents of the expanded cities and the subsequent consequences on the effectiveness of local body institutions in terms of decentralized planning and participatory management of local resources. The paper intends to bring forth the larger debate on the conflicts between the state and the people latter representing the crumbling people's voice while the former as vanguard of grand projects in the name of development. The paper is based on the understandings derived from the perspective planning of NREGS in the villages lying under urban fringe of Allahabad.

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Introduction

The land acquisitions by the governments for industrial or infrastructure development have been witnessing protests at many places in recent past compelling governments and political parties to open dialogue with the affected people for negotiations to resolve the problem. Although the governments still continue with conservative hegemonic approaches but organized and sustained pressure by the people at some places have made the governments realize that time is changing fast and the State cannot impose conditions arbitrarily in the name of developmentⁱ. The protests against projects like, Narmada Dam, Singur, Nandigram, Dadri, Singrauli, Ganga Express Way are few examples in this regard. The issues of development induced displacement along with rehabilitation and resettlement (R & R) provisions are gaining importance in the contemporary development planning discourse with the balance slowly tilting in favour of concerns for people and their livelihoods. The bulldozing approach of State sponsored development is at the same time being strongly criticized by the proponents of sustainable development by raising issues of ecological security and climate change.

A major ongoing displacement, across the country, is the displacement due to urban expansion. Influenced by both push and pull factors the urban fringe is the single most important factor causing significant changes in the land-use patterns. In most of the cases it involves conversion of more fertile agricultural land to non-agricultural purposes. In the case of urban fringes the land is generally sold by the owners rather than being acquired. In this sense such displacements are generally termed as 'voluntary' rather than forced (Shah and Kumar 2008).

Though the scale of conversion of land is very high, there is no systematic estimate about how much land is being converted from agricultural to non-agricultural purposes every year in the fringe areas of the country. Secondly efforts have seldom been made to understand how the people who have lost their land have eventually been co-opted into the new economic order and how many remained victims of 'development', remains unknown (Sharma 2003). This is mainly due to the fact that (a) adjustment or co-option to the new economic order is a long-drawn process; very few studies have gone into examining the process over a period of, say 15 to 20 years; and (b) although urbanization-induced loss of agricultural land is relatively larger, it remains unnoticed as much of the land is sold 'voluntarily' under the 'right to choose' use of the land by the owners (Shah & Kumar 2008)

Generally it is believed that urban expansions provide opportunities to villagers for getting competitive price of their land either from government or private developers which help them starting new occupations or businesses with possibilities of rise in the income levels. It is argued that they are able to get access to facilities of planned urban system in the form of electricity, roads, street lights, drinking water, recreation centre, transport and communication, schools and hospitals, and other facilities which help them improving their quality of life. The newspapers and popular magazines have regularly been publishing columns about the stories from places like Noida, Faridabad, Lucknow, Mumbai, Bangalore, Hyderabad, Allahabad or any other growing city highlighting the overnight changes in the lifestyles with conspicuous presence of costly cars, mobile phones, televisions, and other consumer durables in the homes of erstwhile struggling-hard farmers. Many farmers become contractors, building material suppliers and land market players. Suddenly the sleepy traditional villages with scattered hamlets get transformed into fast moving, active and modern cities. The

developers claim that those farmers would have never been able to earn that much of income from their land if it was not sold for urban expansion. Thus, as soon as the notification is published for expansion of urban limits the land market becomes bullish. Farmers start looking eagerly for bargain and getting their lives transformed for which they had aspired for generations. In this sense the phenomenon is being looked at as voluntary displacement (Sharma 2003). To a large extent it might be true for the villages where land had been less fertile with poor irrigation facilities and the agriculture being at subsistence level. However without analyzing the long term impact on the lives of affected households it would be grossly unfair to draw a hasty conclusion that the 'so-called' voluntary displacements are always 'from bad to good'.

It has been pointed out that more often than not, the result has been devastating on the communities, especially the landless labourers, small entrepreneurs and local artisans (D'Rozario 2005). In most of the cases as the demand for labourers increases with the growth of construction related activities in urban fringes the landless agricultural labourers are transformed into unskilled or semi-skilled construction labourer to meet the growing labour demand of the expanding informal construction industry. Many people consider that it is the mobility towards a better life. However the NCEUS report revealed that the informal construction workers get less than statutory minimum wages (NCEUS 2008). The processes unleash a situation where more and more people are being displaced from their communities and traditional ways of life (Sharma 2003). It is a matter of fact that the private developers are mostly interested in quick profits from real estate business and are completely detached from concerns for the needs and rights of the affected rural communities. The local communities remain voiceless spectator to the alienation from their own traditional subsistence resources under the overwhelming hegemony of bureaucratic top-down interventions.

The urban fringe represents a unique set of villages with dual characteristics of rural and urban simultaneously. These villages face peculiar type of problem relating to management and planning of natural resources due to overlapping territories of local bodies and the urban development authorities. In the name of comprehensive development plans to meet the requirements of growing city population the development authorities encroach upon the autonomy of village panchayats overlooking the national commitment of decentralized planning and participatory management. The development plans imposed by development authorities in urban fringe villages are contrary to the spirits of 73rd constitution amendments. It is against the Constitutional intentions to bring about people's participation in governance at grassroots and negates the right to development of local people.

The continued duality in governance in fringe villages is adversely affecting the effectiveness of various development schemes intended to be implemented through village panchayats. As soon as the notification for inclusion of certain villages in the city limits is published the development agencies start ignoring the authority of village panchayats and de-facto they are made to be vanished away. It has been pointed out that after the 73rd Constitutional amendment the village panchayat units are democratically elected statutory corporate bodies with tenure of five years (The Constitution of India Part IX). These panchayats are entrusted to prepare economic plans for the territory they govern. They are answerable to the members of the Gram Sabha (UP Panchayat Raj Act, Ch.III Sec. 11-3 b). The village panchayats also function as the Land Management Committees responsible for upkeep, protection and supervision of the land within their territorial limitsⁱⁱ (UP Panchayat Raj Act, Ch.IV Sec. 28A). Now suddenly a government notification comes out and the very existence of the village

panchayat is put to the question. Not only village panchayats but several intermediate panchayats and district level panchayats also get affected without taking them into confidence.

Thus the procedure of land acquisition for urban expansion is a reflection of hegemonic approach of the State. At no place people are consulted regarding the motives of acquisition. The planning exercises never involved people or community based organizations. It is assumed that the professionals sitting at the helm of affairs were most competent and efficient and they alone can prepare the best plans for the developmentⁱⁱⁱ. It reflects the arrogance of the policy makers and the planners and their attitude to look at the people with utter neglect. The participatory planning, decentralized governance and democratization all become mere rhetoric. There has never been any participatory process initiated in either planning or implementation. While this process obviously brings forth the critical questions regarding citizenship and democracy, it also highlights the abject neglect of these communities and their fundamental rights (D'Rozario 2005).

II

Research Questions

The above discussion raises certain questions that need to be addressed for better understanding about its impacts on different sections of the affected households of the 'so-called' voluntary displacements in urban fringe areas over a period of time. These questions can be classified into three broad categories

(i) The Land, People and Livelihoods: The conversion of land from agriculture to non-agriculture purposes in fringe areas affect different sections of village community differently according to their relationship with the land and their tenure rights. The genuine title holders are the directly affected persons while persons depending on the commons as well as on the landowners for wage employment are the indirectly affected persons. The livelihoods choices for both the sections would obviously be affected differently.

The directly affected persons might be gainers^{iv} and losers both depending upon the quality and location of their land. With poor quality land farmers might gain but superior quality landowners would definitely be the losers. The latter would react aggressively. Therefore the questions needed to be addressed are:

1. Had the farmers been taken into confidence while initiating the proposal for acquisition of their land?
2. Had they been told about the compensation measures and procedures involved in it?
3. Had there been any dialogue with the farmers regarding alternative livelihood opportunities after their land is acquired?
4. Had there been any discussion on the coping problems of farmers in the future urbanized economic model?
5. Had there been any dialogue regarding the forms of urban planning and expansion and on the ongoing urban oriented development model?

The people who are indirectly affected are the landless, village level retail traders and local artisans who might not be the title holders but their livelihoods are certainly affected after their village is transformed into a city. These are the people who are dependent on common property resources for their livelihoods in multiple ways. They do not have any right on those resources in a formal sense. Perceived as a safety net by those households the extinction of Common Property Resources (CPR) certainly increases their vulnerability and are forced to move further back to remote villages and start their lives afresh. They are forced to pay the price of the progress.

The questions needed to be addressed thus are -

- a. Have the concerns of such households been taken into consideration while acquiring the CPR?
- b. Is there any scope for such households to be considered as affected persons in the form of entitlements on the CPR?
- c. Is there any mechanism thought of for securing futures of such households?

(ii) The Institutions: The land is acquired in the name of 'public purpose' by the sovereign^v which cannot be challenged in any court^{vi}. However, in a democratic country like India people are governed by the Union, State and Local governments. It is a continuum of governance. If any institution in this sequence is bypassed it is undemocratic and unconstitutional. It is extremely unfortunate that the democratically elected village panchayats are bypassed by higher authorities in taking decisions on the issues that are vested in the panchayats. In the present form of land acquisition for urban expansion the village panchayats are doomed to be sacrificed for establishing the supremacy of the higher authorities.

The questions needed to be addressed are -

- a. Being the smallest unit of governance whether the village panchayats are recognized as an integral part of governance?
- b. Is there any mechanism in existence ensuring participation of village panchayats in decision making ?

(iii) The Processes: The processes involved in land acquisition have long term implications for the democratic decentralization and inclusive growth in India.

The questions involved in this realm are:

- a. Is there any process for bringing into consideration the indigenous model of development in the planning of fringe area?
- b. Are there any provisions for integrating the existing development plans initiated by the panchayats with the proposed model?
- c. Have the sustainability issues of the proposed development model been discussed with the people so that it does not lead to impoverishment?

III

The Context

The present paper is an attempt to address the above questions involving different participatory communication methods at micro level. The recent notification by the Governor of Uttar Pradesh for expansion of Allahabad *Mahanagar* has been considered as the basis for isolating the urban fringe.

The total population of Allahabad was around 493.61 million (2001 census) out of which 372.90 million were rural residents and 120.68 million were urban dwellers. The total geographical area is about 548.2 thousand hectare of which 97.3 per cent belong to rural areas (536.5 hectare) and merely 2.7 per cent (11.7 hectares) are covered by urban areas. Administratively the rural area of Allahabad is divided into six sub-divisions, twenty CD Blocks and 1425 village panchayats representing 3054 revenue villages, 2802 inhabitant and 262 uninhabited (Statistical Journal Allahabad 2007).

On November 30, 2006 the Governor of Uttar Pradesh, through a notification declared that 442 revenue villages belonging to four sub-divisions shall be the part of Allahabad *Mahanagar* (Metropolitan city) area along with the entire area covered under Nagar Nigam, Allahabad Development Authority and the Town Area, Jhusi. The notification was published in pursuance of the powers mentioned in the section 2- 45 A of UP Nagar Nigam Act 1959 read along with the provisions of 243 *ta* of the Constitution of India.

Thus 14.5 percent villages are to be covered under the urban limits. These villages are spread in three sub-divisions and five CD blocks. The details of area to be acquired are given in the following table:

Table-1

Land and Population in Affected Villages under Urban Expansion in Allahabad

Block	No. of GP	Total Area ('00 ha)	Area under cultivation ('00 ha)	Area under CPR ('00 ha)	Total Population ('000)	BPL Population ('000)
Kaurihar	38	67.24	49.02	11.42	171.57	47.60
Soraon	40	72.78	52.27	20.52	142.55	42.52
Bahariya	11	20.00	14.56	5.43	35.74	13.62
Bahadurpur	38	75.14	55.55	19.59	139.71	42.43

Chaka	41	52.10	3120	20.90	134.40	38.46
Total	168	287.26	202.60	77.86	623.97	184.63

Source: Governor's Notification dated Nov. 30, 2006 & District Perspective Plan for NREGA in Allahabad

In all 168 (about 12 per cent) village panchayats are affected by this notification. The geographical area of these panchayats is about 287.26 hundred hectares constituting about 5.33 per cent land of the rural area. Out of which 202.59 hundred hectare land is under cultivation and nearly 75 per cent of this is of very good quality affecting livelihoods of 6.23 lacs persons (4.77 per cent of the rural population). Among the affected people 1.85 lacs (29.7 per cent) belong to BPL category.

IV

Methods of Enquiry

The processes involved in the land acquisition by the government as well as private players for urban expansion produce a mix of reaction among local population. The affected persons could be categorized into two categories; (i) directly affected persons whose land was likely to be acquired and (ii) indirectly affected persons generally landless who might not be losing land in the process but their livelihoods would certainly be affected after their village is transformed into a city. In order to get the complete picture it is essential to analyze the views of persons belonging to both the categories. To elicit the views and opinions about the likely impacts on the lives and livelihoods of affected persons was a challenge as the issues have strong emotional bearings. Secondly most of the affected persons were lacking information about the government notification on the inclusion of their village into the city limits so individual interviews with conventional structured questionnaire would not be helpful. Thirdly, the perception about the likely impacts could better be understood only by applying a long term impact analysis and for that the persons affected previously need to be included into the study. And, lastly the socio-political environmental factors are also to be taken care of for understanding the dynamic competing processes of institutions at different levels. Keeping in view the exploratory nature of the study the qualitative methods were preferred for collecting the primary data. Following methods were applied:

Focus Group Discussions (FGDs): Three FGDs were conducted. Two with the group of farmers belonging to the villages notified for inclusion into the city. Both the villages – (i) Sarangapur (Chaka block) and (ii) Kuandeesh (Bahadurpur block) were beyond five kilometers from the Nagar Nigam limits. The third FGD was conducted with the labourers selected from the labour chauraha operative in a fringe locality-Jhusi. The group was comprised of labourers of young and aged; and unskilled and semi-skilled both. The labourers were selected from such locations that had been witnessing the urbanization process since last 15-20 years. It was assumed that it would help to understand the impact of urbanization on the indirectly or less affected persons.

In-depth Interviews with Key Informants: for supplementing the information collected through FGDs in-depth interviews were conducted with village pradhans, teachers, labourers, farmers, women from slums.

V

Findings from the Field

A. The Land, People and Livelihoods

A-1: The Farmers

The farmers, likely to be affected by the proposed acquisition were unnerved when told about the notification. They were unable to understand how any government could acquire their ancestral property without their consent. During the FGDs the farmers expressed that land is key asset for them, it is their identity, determines their social status, they could not even think that they could survive without land. Their life moves around the land. Agriculture is not simply their bread and butter; it is their life. If the land is detached, farmers would be vanished away. They expressed that government is conspiring with the real estate business houses and township developers to eliminate the farmers.

The fear was explicitly expressed by the farmers that they would never be able to cope with the lifestyles of new economic order as most of them were either illiterate or less educated. They would certainly fail to find any employment and their livelihoods would be at stake. It has rightly been observed that once displaced, the affected persons are pushed into an open-market situation as individuals competing for their survival in a hostile new environment. A majority of them proved to be losers in this new race of development^{vii}. (Sharma 2003). The only way out would be to purchase land in distant villages and that would be traumatic enough as their community life would also be destroyed.

The group also narrated that the land owned by the farmers is not the basis of livelihoods for their families alone; it has linkages with off-farm activities, non-farm occupations as well as wage employment opportunities for agricultural labourers^{viii}. The loss of land to the farmers would cause more hardships to the landless agricultural labourers, local artisans and village retail traders.

The issue of Common Property Resources (CPR) was also raised during the discussion. Apprehensions were raised that in the new order it would be very difficult to manage space against heavy payments for marriages and other social ceremonies whereas in the villages they could get common land for such purposes without any payment. They can keep their livestock without any problem of space which would not be possible in urban settlements^{ix}.

A-2: The Agricultural Labourers, Artisans and Rural Retailers:

Nearly one-third of the rural population belonged to this category of indirectly affected persons. The views and opinions that were revealed during the FGD with labourers provided a glimpse of hardships being faced by the displaced labourers and their woe of not being heard anywhere. It helped to understand the miserable conditions of those labourers who fail to cope with the urban labour market requirements. Generally it is believed that the labourers gain in terms of better opportunities of work, higher and timely payment of wages in the urban economic order. The labourers were in agreement with the observation to some extent but simultaneously revealed that as compared to rural areas the working conditions in urban informal labour markets are worse, they are required to work for longer hours, and at certain time risk to life is also involved (NCEUS 2008). The transformation of villages into cities destroys their traditional social networks and in the absence of any alternative social security system they become victims of what Michael Cernea calls spiral of impoverishments (quoted in Kothari 1996).

The labourers were of the view that in rural areas they have the right to make claims for allotment of agricultural land on Gram Sabha land through village panchayats on preferential terms^x which provides some sort of food security. It has been observed that for poorer households homegrown grains constitute nearly thirty per cent of their food requirements. The labourers told that they can produce foodgrains that could provide food security for about six months. In cities there would be no such provisions hence contributing towards the process of vulnerability.

The landless labourers were aware that they were entitled to get residential sites^{xi} and subsequently construct houses under Indira Awas Yojna (IAY) schemes which would not be in the case of urban areas. They were residing either on community land, railways land, embankments of village ponds or on private land of cultivators. Homelessness is one of the major causes of vulnerability for such members. It was in this backdrop the allotment of housing sites have special significance in rural areas^{xii}. Further, the FGD participants expressed their helplessness in protecting their residential and agricultural land in case their neighbours or family members have sold their pieces of land or building to someone who is an influential person. They informed that in such cases they are coerced and threatened in many ways to sell out their piece of land or building and ultimately they are left with no option except to dispose off their land despite their un-willingness. Can this be called as the voluntary displacement?

B. The Institutions

The village pradhans participating in the FGDs informed that they are not clear what would be the fate of their panchayats after the inclusion of their villages in the city limits. The notification mentions that the villages mentioned in it would become the part of the Allahabad Mahanagar. Obvious conclusion is that the panchayats would get dissolved. The UP Panchayat Raj Act, 1947 Section II-A (8) states "if the whole of the area of Gram Panchayat is included in a city, municipality, cantonment, notified area the Gram Panchayat shall cease, and its assets and liabilities shall be disposed of in the manner prescribed. If a part of such area so included, its jurisdiction shall be reduced by that part". Then the Section 34 says that subject to any special reservation made by the State Government all public property situated within the jurisdiction of a Gram Panchayat shall vest in and belong to the Gram Panchayat and shall, with all other property which may become vested in the Gram Panchayat be

under its direction, management and control. At the same time the preamble of the Act says that Act is for to establish and develop Local Self Government in the rural area of the Uttar Pradesh and to make better provisions for village administration and development. It has been mentioned that subject to such conditions as may be prescribed by the State Government from time to time, a Gram Panchayat shall perform the functions classified into twenty nine categories, which include promotion and development of agriculture and horticulture, development of wastelands and grazing lands and preventing their unauthorized alienation and use, land development, land reform implementation, assisting the Government and other agencies in land consolidation and soil conservation, implementation of rural housing programmes, distribution of house sites, preparation of plan for economic development of the area of the Gram Panchayat, preservation and maintenance of community assets. Further the Section 15-A of the Act states that a Gram Panchayat shall prepare every year an economic development plan for the Panchayat area and submit it to the Kshetra Panchayat concerned before such date and in such manner as may be prescribed.

It is true that the legally all the assets vested in panchayats are subject to the conditions prescribed by the State government and can be acquired in the manner prescribed under law. But the above arrangements seem to be contrary to the spirit of the Constitution after 73rd Amendment which is specifically in favour of decentralization and democratic participation in governance for transferring the power to the people. The participants expressed their concerns about the approach and attitudes of the state and para-statal agencies towards village panchayats ignoring the smallest unit of governance in taking decisions on the issues that are vested in them. They opined that such initiatives harm the institutional environment at grassroots level that has been evolved over a period of about two decades. The participants were saying that in the name of comprehensive development plans to meet the requirements of growing city population the development authorities are encroaching upon the autonomy of village panchayats overlooking the national commitment of decentralized planning and participatory management. They were emphasizing that it is against the Constitutional intentions to bring about people's participation in governance at the grassroots and negates the right to development of local people. It seems that the governments at higher levels lack faith in the village panchayats that is why they are probably shy in sitting with panchayats for negotiating the issues related to the area

C. The Processes

The participants of FGD expressed that the fringe areas are neither city nor village, worse of both places coexist nor they turn out to be unplanned, unhygienic and unhealthy habitations with illusionary development benefits of urbanization. These views were quite close to the observation of researchers regarding peri-urban environment or *rurban* development (Allen 2003). Many times the area remains incomplete or unattractive to potential beneficiaries due to the absence of adequate infrastructure or, such acquired lands remain unused or are encroached. It has been observed that the lands transferred by farmers to city dwellers lead to haphazard growth on the urban periphery and prove a challenge to planners in terms of providing basic amenities in such areas. For example, the unchecked growths of metropolitan cities like Bangalore, Pune or Kanpur (Sharma 2003). The villagers observed that the areas that were included in urban limits twenty years back are still struggling to get urban facilities as were painted at that time. They have not gain anything but are paying numerous taxes to different civic bodies – like house tax, water tax, higher electricity charges without any improvement in the services. People have lost faith in the system of payment of

compensation because eight years back when their land was acquired for NTPC plant no compensation was paid to farmers. The affected farmers organized protests, they were *lathi-charged* and coerced by the state machinery in the name of development.

The participants of FGD were of the view that the entire process is with the sole objective to generate resources for para-statal bodies like development authorities and basic service agencies. They expressed that there exists a nexus between vested interests representing real estate businesses, private colonizers, the bureaucrats and persons sitting in the government. Instances were aired that the government first acquired land, transferred it to the development authority and was then handed over to a private construction company for township development. The villagers were raising allegations of conspiracy in the whole process. Some of them were blaming the government to be in hand and gloves with the World Bank and other multinationals.

There was a very serious apprehension among the participants that as soon as the notification for inclusion of villages gets published the provisions of urban ceiling are imposed upon them automatically and the land of many farmers is transferred in favour of the Nagar Nigam. They were narrating such instances where the names of farmers were struck off from the official records without serving any notices to them. Farmers were agitated and expressing that their ancestral property was taken away without even consulting with them. It is an arbitrary act and cannot be termed anything but sheer grabbing of their land by the State.

VI

Need for a Paradigm Shift

The 73rd Constitution Amendment and subsequently concomitant changes in state Panchayat Raj Acts has raised expectations at grassroots that the village panchayats have the status to negotiate on behalf of villagers and protect their interest. During last fifteen years the panchayats have completed two full terms and third is passing through the last year. Thus the panchayats are gradually maturing as democratic institutions at grassroots level. The villagers are also progressively learning how to control and manage their panchayats and prepare plans their economic development through it. The introduction of NREGA throughout the country has strengthened this process. People are getting educated with social audit, RTI, public accountability and transparency tools. Many NGOs are engaged in providing training to panchayat representatives for asserting their rights as institutions of governance. SHGs and other Community Based Organisations (CBOs) are being formed and capacities are being built through trainings for people's participation in the decision making that affects their lives. Public and legal advocacy campaigns by social activists and development organizations against the hegemonic attitudes of state governments towards village panchayats are gaining strength day by day. The state sponsored model of development is being challenged in different parts of the country by various groups and alternative paradigms are being discussed as people oriented sustainable development models. India along with many other developing countries is intensively engaged in the contemporary debate on alternative development model; whether development preserving the lives and livelihoods or the development alienating people from their traditional sources of sustenance. In this sense as many researchers are emphasizing that the questions of 'public purpose' and 'national interests' and 'sovereign domain' need to be redefined.

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Notes

¹ Growing social activism against such sovereign domain of government is not only in response to untold hardships and miseries caused to the affected people but also a protest against the very model of development that alienates people from their traditional sources of sustenance (Sharma 2003)

² UP Panchayat Raj Act, 1947 Section 28-A The Gram Panchayat shall also be the Bhoomi Prabandhak Samiti (Land Management Committee) and as such discharge the duties of up-keep, protection and supervision of all property belonging to or vested in or held by the Gram Panchayat under Section 117 of the UPZALR, 1950 or

under any other provision of that Act. The Gram Pardhan and Up-paradhan shall respectively be the Chairman and Vice-Chairman of the Committee and the Lekhpal of the area shall be the secretary. The LMC for and on behalf of the Gram Panchayat be charged with the general management and control of all property referred to in Section 28-A including: the settling and management of land, the preservation, maintenance and development of forests and trees, the maintenance and development of abadi sites and village communications; the management and development of haats, bazaars and melas; the maintenance and development of fisheries and tanks.

ⁱⁱⁱ In an overwhelming number of cases, there is an almost arrogant assumption that the project that has been drawn up for implementation is socially and economically the most appropriate and that the development intervention cannot be challenged because it has been conceived by experts and is in the 'public' and 'national' interest. (Kothari 1996)

^{iv} Quoted in Shah and Kumar An important implication of this has been a more activated land market where many more farmers may want to sell off at least a part of their land in order to make an entry into the urban economy for exploring alternative occupations for the subsequent generations. Thus the fringe lands are generally more fertile and have been put to agricultural use. With increasing population pressure such lands are also bound to feel the pressure (Burton and Matson 1996). The situation is further complicated by an aggregation of use by a variety of stakeholders. Even the farmers living in the area might find non-agricultural income sources to be more profitable and may resort to land speculations (Renaud 1979)

^v Article 31(2) of the Land Acquisition Act, 1894 (now amended 1984) categorically states that a land can be acquired by the state only for Public Purpose. Broadly speaking, public purpose would include a purpose, in which the general interest of the community, as opposed to a particular interest of the individual, is generally and vitally concerned. Anything which is useful to the public, in the sense that it confers some public benefit, or conduces to some public advantage, is a public purpose. The section 3 (f) of The Land Acquisition Act defines public purpose includes: provision of land of village sites for planned development or improvement of existing village sites, provision of land for town or rural planning, provision of land for planned development of land from public funds in pursuance of any scheme or policy of government and subsequent disposal thereof in whole or in part by lease, assignment or outright sale with the object of securing further development as planned, the provision of land for a corporation owned or controlled by the State, the provision of land for residential purposes to the poor or landless or to persons residing in areas affected by natural calamities, or to persons displaced or affected by reason of the implementation of any scheme undertaken by Government, any local authority or a corporation owned or controlled by the State; the provision of land for carrying out any educational, housing, health or slum clearance scheme sponsored by Government or by any authority established by Government for carrying out any such scheme, or with the prior approval of the appropriate Government, by a local authority, or a society registered under Society Registration Act, 1860, or a cooperative society; the provision of land for any other scheme of development sponsored by Government or with the prior approval of the appropriate Government, by a local authority; the provision of any premises or building for locating a public office, but does not include acquisition of land for companies.

^{vi} Quoted in Kothari 1996: In 1994 the Supreme Court observed that The Power to acquire private property for public use is an attribute of sovereignty and is essential to the existence of government. The power of eminent domain was recognized on the principle that the sovereign state can always acquire the property of a citizen for public good, without the owner's consent...The right to acquire an interest in land compulsorily has assumed increasing importance as a result of requirement of such land more and more everyday, for different public purpose and *to implement the promises made by the framers of the Constitution to the people of India* (emphasis added) (Kothari)

vii Unaccustomed to new ways of life, the affected people face a hostile situation where they have to compete as individuals, different from their community-based setting. Many lose out in this race for development. (Sharma 2003)

viii In a village setting, the productive land is a collective source of livelihood not only to its owners but also to the indirectly affected families like the agricultural labourers, village servants (carpenter, blacksmith, cobbler, and so on). The directly affected, as per the law, are entitled to compensation and other benefits as a part of resettlement and rehabilitation. However, the indirectly affected—depending on the owner's land—are left without any protection. Some of them get contractual jobs when the project is under the construction stage but no long-term rehabilitation measures are available to them. (Sharma 2003)

ix The common property resources (grazing lands, fuel sources, ponds, wells, 'sacred groves', worshipping places, playgrounds) deplete or are lost if the village structures are to be demolished. In the urban context PAPs lose their place of work (like hawking/vending, self-employment) if some infrastructural project results in their shifting to locations where such opportunities do not exist or take time to develop. (Sharma)

x In the admission of persons to land as (bhumidhar with non-transferable rights) or asami under Section 195 or Section 197 (hereinafter in this section referred to as allotment of land) the LMC shall, subject to any order made by a court under Section 178 observe the following order of preference:

landless widow, sons, unmarried daughters or parents residing in the circle of a person who has lost his life by enemy action while in active service in the Armed Forces of the Union;

a person residing in the circle, who has become wholly disabled by enemy action while in active service in the Armed Forces of the Union;

a landless agricultural labourer residing in the circle and belonging to a Scheduled Caste or Scheduled Tribe;

any other landless agricultural labourer residing in the circle;

a bhumidhar or asami residing in the circle and holding land less than 1.26 hectares (3.125 acres);

a landless person residing in the circle, who is retired, released or discharged from service other than service as an officer in the Armed Forces of the Union;

a landless freedom fighter residing in the circle who has not been granted political pension;

any other landless agricultural labourer belonging to a Scheduled Caste or Scheduled Tribe not residing in the circle but residing in the Nyaya Panchayat Circle.

"Landless" refers to a person who or whose spouse or minor children hold no land as bhumidhar or asami and who had no land as such within two years immediately preceeding the date of allotment while "agricultural labourer" means whose main source of livelihood is agricultural labour.

xi The provisions of the UPZALR Act empower the LMC to allot house sites to landless households belonging to the Scheduled Castes and the Scheduled Tribes and agricultural labourers and village artisans from the land vested in the Gram Sabha or the land earmarked for abadi and reserved as abadi sites for Harijans under the UP Consolidation of Holdings Act, 1953 (Section 122 (c) of UPZALR Act, 1951).

^{xii} In the outreach projects it has been observed that the ownership of a piece of land is not merely a material gain to a landless person instead it significantly contributes in altering the attitude and behaviour of the person. The agricultural land is the key asset in rural areas for sustainable livelihood security. It has been found that the award of title not only helps in creating self-confidence among beneficiaries but they start thinking similar to the general population regarding the pay offs of individuals' effort and hard work on this asset. And it is only then that interventions relating to poverty alleviation start appealing them.



**AGRICULTURAL LAND ACQUISITION SPECIAL
ECONOMIC ZONES AND ITS CONSEQUENCES –
A THEORETICAL EXPLORATION**

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Agricultural Land Acquisition Special Economic Zones and Its Consequences A Theoretical Exploration

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Introduction

Special economic zones are actually a geographical region with different economic laws than a country's traditional economic laws. The purpose of special economic laws is to attract foreign investment from abroad. There are approximately 4000 special economic zones worldwide. Important countries which have adopted the SEZ include China, UAE, Russia, Poland, and India.

Export processing zones are an international phenomenon. Its importance in quantitative phenomenon is increasing day by day. For example in the mid 1980's there were EPZ's in about 50 countries now in 2003 they were spread across 116 countries. Actually export processing zones are special industrial parks providing duty relief to export oriented firms operating in the zones. They are thus enclaves within a country where foreign domestic goods may enter duty free in order to be stored and distributed.

The effectiveness of the Export Processing Zone (EPZ) model in promoting exports was first recognized in India with Asia's first EPZ set up in Kandla in 1965. In order to get rid of the problems encountered on account of the multiplicity of controls and clearances, lack of sophisticated and up-to-date infrastructures and wobbly fiscal administration the

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Government of India announced the Special Economic Zones (SEZs) Policy in April 2000 with an eye to magnetize foreign investments in India. It was the objective of the Government of India to craft SEZs as engine for economic growth. With this end in view, both the Centre and the different States of India announced strikingly lucrative fiscal package accompanied by the minimum possible regulations by the Government. Under the provisions of the Foreign Trade Policy and fiscal incentives that were made effective through the provisions of relevant statutes SEZs in India started functioning on and from 1st November, 2000.

Incentives and Facilities Offered to the SEZs

With a view to attracting investments into the SEZs, including foreign investment, the government of India proclaimed a number of incentives and facilities for the units in SEZs. We may list them as follows.

- ↓ Duty free import/domestic procurement of goods for development, operation and maintenance of SEZ units
- ↓ 100% Income Tax exemption on export income for SEZ units under Section 10AA of the Income Tax Act for first 5 years, 50% for next 5 years thereafter and 50% of the ploughed back export profit for next 5 years.
- ↓ Exemption from minimum alternate tax under section 115JB of the Income Tax Act.
- ↓ External commercial borrowing by SEZ units up to US \$ 500 million in a year without any maturity restriction through recognized banking channels.
- ↓ Exemption from Central Sales Tax.
- ↓ Exemption from Service Tax.
- ↓ Single window clearance for Central and State level approvals.
- ↓ Exemption from State sales tax and other levies as extended by the respective State Governments.

Those who will develop SEZ will be given special incentives and facilities which are:

- ↓ Exemption from customs/excise duties for development of SEZs for authorized operations approved by the Board of Approval.

- ↓ Income Tax exemption on export income for a block of 10 years in 15 years under Section 80-1AB of the Income Tax Act.
- ↓ Exemption from minimum alternate tax under Section 115 JB of the Income Tax Act.
- ↓ Exemption from dividend distribution tax under Section 115O of the Income Tax Act.
- ↓ Exemption from Central Sales Tax (CST).
- ↓ Exemption from Service Tax (Section 7, 26 and Second Schedule of the SEZ Act).

(See Report on Special Economic Zones in India, Ministry of Commerce and Industry, Department of Commerce, Government of India, Thursday, September 27, 2007).

Table-1. Some Facts on SEZs in China and India

	China	India
Number	7	Ultimately 400-500
When started	1980	Mostly after 1991
Democratic decision?	A lot of discussion and debate preceded the setting up of SEZs	No discussion. Parliament passed the law easily
Size	Very large (Shenzhen: 32,700 hectares)	Small (3,000-14,000 hectares)
Ownership	State	Private corporations
On what kind of land	Mostly coastal wasteland	Mostly fertile cultivated land
Exports	Very good (Shenzhen: Net exports in 2006, \$ 35 billion)	Poor so far (in 1998 a waiver of \$1.67 billion on customs duties was given to earn \$ 1.04 billion in foreign exchange)
Employment	Substantial number of low-paid jobs	Very limited so far: 100,650 in all SEZs, till March 2005
Tax revenue collections	Only selective tax incentives provided	Across-the-board tax holiday given to companies
Overall economic success	Shenzhen very successful, but at least two SEZs have failed	Largely unsuccessful so far
Ease of land acquisition	Land battles in some areas	Bloody, bitter resistance

Source: www.infochangeindia.org

Impact of agricultural land acquisition for Special Economic Zones on Livelihood security

Household livelihood security is defined as adequate and sustainable access to income and resources to meet their basic needs (which includes access to clean and safe drinking water, health facilities, educational opportunities, housing and also social integration (Frankenberger et. al. 2002). Livelihood can be made up of variety of on farm and off farm activities that together provide a variety of procurement strategies for cash and food (CARE, 2002). Thus, each household may have several sources of entitlement which combined together constitute its livelihood.

Livelihood options can be considered to be those activities in which women and men engage in order to make a living. A livelihood comprises of the capabilities, assets and activities required for means of living. A livelihood is said to be sustainable when it can cope up with and recover from shocks maintain or enhance its capabilities and provide sustainable livelihood opportunities for the next generation (Chambers and Conaway, 1992).

Consumption of the Land Loser People: A Life Cycle Approach

The life cycle hypotheses of consumption made famous by the works of Ando and Modigliani (1963) has always been interesting. However to our best knowledge no paper has yet studied the likely life time consumption pattern of people in the wake of special economic zones. In this paper an attempt is being made to study the likely consumption pattern of the people in wake of special economic zones. The land acquisition and labour displacement have been criticized widely in India. However, since land is a state subject, according to constitution of India acquiring or not acquiring land is a prerogative of the State. Land is a perennial source of income to the farmers. Therefore, once for all price (whatever its magnitude may be) paid to the farmers for persuading them to sell their land cannot be of same value what the farmers could have reaped from the cultivation through out their lifetime. Therefore, the amount of financial compensation for the sale of the land by the farmers should be determined through the economic criterion of present value of series of annual return from the land.

Let us consider a hypothetical model in which due to the setting up of Special Economic zones, there is acquisition of cultivable land. The Land owners would be paid compensation. Let us assume that such a sale is made in period "0" and after which the individual is expected to live "T" years. The Individual has before him a market rate of discount and an unmeasured psychological subjective rate of discount.

Following the works of Irving Fisher we consider consumers with Utility function of the form

$$U=U (C_0, C_1, \dots, C_t, \dots, C_T) \quad (1)$$

where lifetime Utility U is function of his real consumption up to period T, i.e, the instant before he dies. The consumer will try to maximize his utility subject to the constraint that the present value of his total consumption in life cannot exceed the present value of his income

$$\sum_0^T \frac{C_t}{(1+r)^t} = \sum_0^T \frac{Y_t}{(1+r)^t} \quad (2)$$

where T is expected life time, the constraint implies that the consumer can allocate his income stream to a consumption stream by borrowing and lending but the present value of his consumption is limited by the present value of his income. Let us consider an individual at sometime 0³ who expects to live until the time T. At time 0, i.e., now she has to choose a level of current consumption that will maximize expected utility over current and future periods, given her current and expected income.

We assume this utility function to be additively separable over time which means each period's marginal utility is independent of consumption in other periods. The most important assumption however is that we assume that the future utilities are discounted at a subjective rate δ , this rate depends on psychological aspect of individual landowners, and its value would vary from one individual to another. The life time utility function may thus be written as

³ Here point 0 refers to the point at which the actual sale of land is made

$$U = \ln c_0 + \frac{\ln c_1}{1+\delta} + \dots + \frac{\ln c_t}{(1+\delta)^t} + \dots + \frac{\ln c_T}{(1+\delta)^T} \quad (3)$$

$$= \sum_0^T \frac{\ln c_t}{(1+\delta)^t} \quad (3a)$$

The intertemporal budget constraint for T years of his life is

$$\sum_0^T \frac{C_t}{(1+r)^t} = \sum_0^T \frac{Y_t}{(1+r)^t} \quad (4)$$

Here r is the interest rate available to consumer for saving or borrowing, i.e., the market rate of discount

The objective of the consumer is to maximize the utility function given by (3a) subject to the budget constraint given by (4). That is, our problem is

$$\text{Max } \sum_0^T \frac{\ln c_t}{(1+\delta)^t} \text{ subject to the constraint } \sum_0^T \frac{C_t}{(1+r)^t} = \sum_0^T \frac{Y_t}{(1+r)^t} \quad (5)$$

The Lagrangian function is

$$L = \sum_0^T \frac{\ln c_t}{(1+\delta)^t} + \lambda \left[\sum_0^T \frac{Y_t}{(1+r)^t} - \sum_0^T \frac{c_t}{(1+r)^t} \right] \quad (6)$$

The optimization principle yields the optimal time path of consumption

$$c_t = c_0 \left(\frac{1+r}{1+\delta} \right)^t \quad (7)$$

In fact the above consumption function can be extended for a specific utility function known as the constant intertemporal elasticity of substitution utility function specified as

$$U(c) = \frac{c^{1-\theta} - 1}{1-\theta}, \text{ where } \theta > 0 \quad (8)$$

The elasticity of substitution for this utility function is constant and equal to $1/\theta$. The higher the value of θ the more rapid is the proportional decline in marginal utility of consumption in response to increase in c , and hence less willing households are to accept deviations from uniform pattern of consumption over time. As θ approaches 0 the utility function approaches a linear function in c .

Furthermore we assume this utility function to be additively separable over time which means each period's marginal utility is independent of consumption in other periods. Since, the utility or the satisfaction is a psychic entity, it is expected that the future utilities are discounted at a subjective rate δ . This rate of discount which depends on psychological aspect of individual landowners embodies the trace, trauma, panic and paroxysm that may result from their loss of land they were tied to. It's most natural that the value of this trauma parameter would vary from one individual to another. The life time utility may thus be written as

$$U(c) = \frac{1}{1-\theta} \left[c_0^{1-\theta} + \frac{c_1^{1-\theta}}{(1+\delta)} + \dots + \frac{c_t^{1-\theta}}{(1+\delta)^t} + \dots + \frac{c_T^{1-\theta}}{(1+\delta)^T} - (T+1) \right] \quad (9)$$

The relevant Lagrangian for this CES utility function would be

$$L = \frac{1}{1-\theta} \left[c_0^{1-\theta} + \frac{c_1^{1-\theta}}{(1+\delta)} + \dots + \frac{c_t^{1-\theta}}{(1+\delta)^t} + \dots + \frac{c_T^{1-\theta}}{(1+\delta)^T} - (T+1) \right] + \lambda \left[\sum_0^T \frac{Y_t}{(1+r)^t} - \sum_0^T \frac{c_t}{(1+r)^t} \right] \quad (10)$$

$$\text{The desired time path of consumption is therefore, } c_t = c_0 \left(\frac{1+r}{1+\delta} \right)^{\frac{t}{\theta}} \quad (11)$$

Let us consider some possibilities about the consumption profile of the land-looser community who belongs to different socio-economic categories.

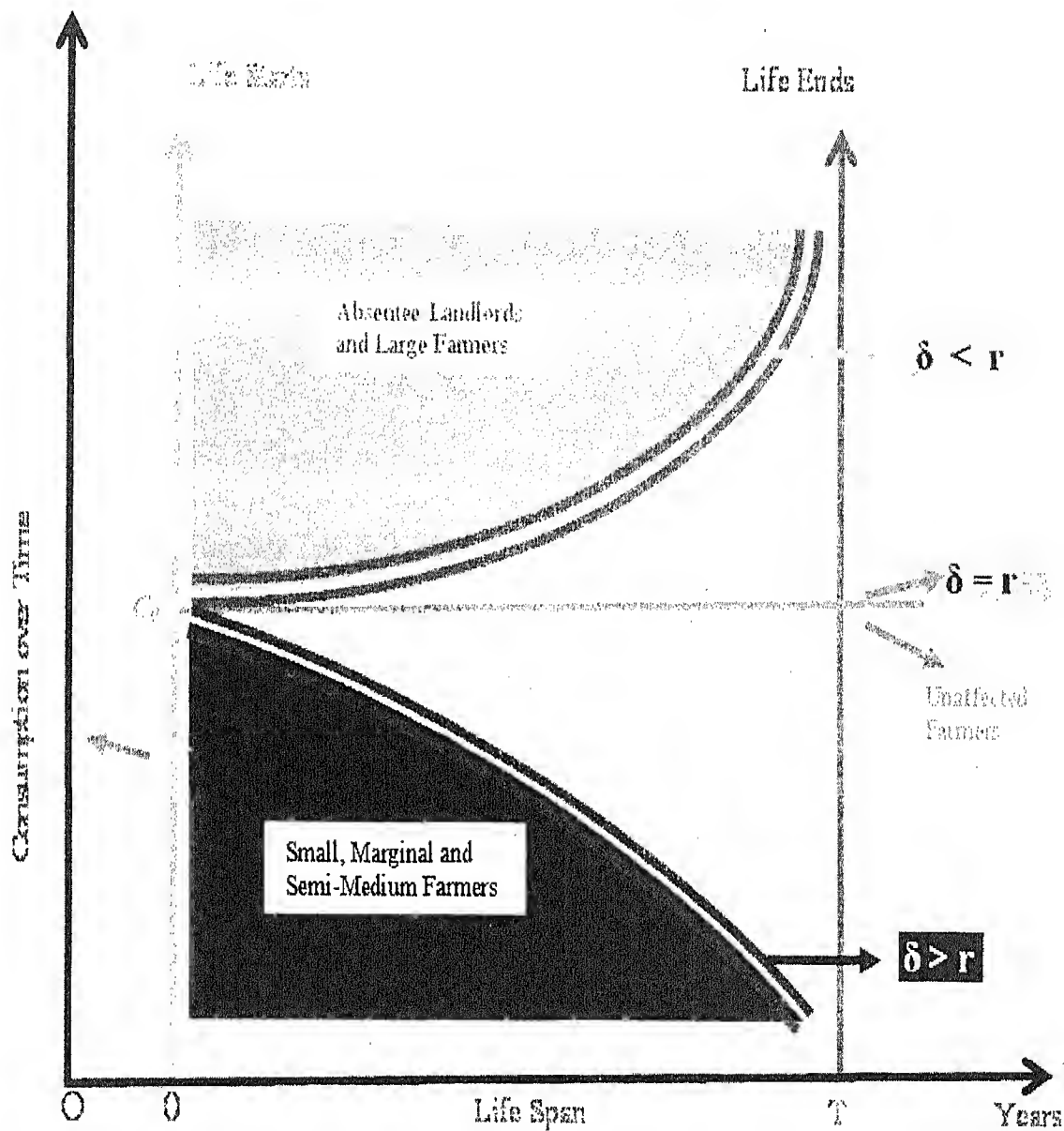
Possibility 1: If the market rate of discount is greater than the subjective rate of discount in equation (7) i.e. if r is greater than δ then the outcome is consumption over time

increases. i.e., $c_t \rightarrow \infty$ as $t \rightarrow \infty$. The same thing holds for constant intertemporal elasticity of substitution utility function. The consumption function would be strictly increasing for all t , tending to infinite with time. As the intertemporal substitution parameter θ is greater than zero in equation (11). It means that when the objective rate of discount is greater than the subjective rate of discount the consumption (specifically the big landholders) will have some windfall gain from the sale of land. The absentee landlords did have no tie with their lands. They generally reside at some distant urban places and get the benefits of cultivation of their land in the rural areas through local tenants or share croppers. The value of δ which is a psychological parameter expected to be low for such absentee landlords who have no attachment with their lands. Hence for such a group of people future consumption is expected to rise, other things remaining the same.

Possibility 2: If $r = \delta$ i.e. if the individual is indifferent between the market rate of discount and the subjective rate of discount then $c_t = c_0$, i.e., consumption at time t is same as present consumption i.e., the moment he is offering the land for sale. His future consumption remains the same as current consumption. The same thing holds for constant intertemporal elasticity of substitution utility function. As the intertemporal substitution parameter θ is greater than zero in equation (11).

Possibility 3: If $r < \delta$, i.e., if the objective rate of discount is less than the subjective rate of discount, then as $t \rightarrow \infty$, $c_t \rightarrow 0$, i.e., consumption approaches zero over time. The situation is likely outcome of the small and marginal farmers who also cultivate their own land and others land as wage-paid labourers. Even if the farmers, stripped off their land due to SEZ, may have some alternative scope of livelihood, still they will have strong psychic pangs throughout their life. This is a fact since the farmers' soul is tied with their land and no financial compensation can be of so weight that it can pacify their pains of losing their lands.

Consumption Profile of the Economy after Loss of Agricultural Land



The Graphical Exposition of Paradox and Pangs of Investment in SEZ Summarized in the Equation
 δ = Psychological Rate of Discount Embodying the Trauma or Trace from the Loss of Land and r = Actual Market Rate of Discount

In the above figure we have plotted all these three possibilities. We have three different kinds of possibilities depending on difference in value between the objective and subjective rate of

discount. Now the question is what is its effect on aggregate consumption in the economy? Since, economic theory suggests that *MPC* of lower income group is higher than higher income group, it is expected therefore, that high income people will not generate much consumption demand in the economy. On the other hand, low income group people who are the majority segment in the economy their consumption would shape the path of aggregate consumption. The decline in consumption would exceed the incline in consumption thereby causing a decline in aggregate consumption over time. This is not desired for a developing economy. This is some sort of paradox analogous to and even more important than the "paradox of thrift"⁴ for a capitalist economy. As the aim of the Government is to stimulate industrial growth, development in the economy, the huge investments are made in SEZ. However, the realized aggregate consumption falls with widening of the consumption gap between different sections of the society. This is not desired for the society and Modern State whose one important objective is the reduction of inequalities as a guiding principle in long term planning. Such a trade-off between big push investment of SEZ and falling and widening of consumption gap across sections of the society will hunt economists of LDC's in coming decades.

Data and studies also show that the poor class is ones who would be affected the most. It has been estimated that about 114,000 farming households (each household on an average comprising five members) and an additional 82,000 farm worker families will be displaced and lose their livelihoods (Citizens research collective, www.sacw.net/Nation/Sezland_eng.pdf). This amounts to the total loss of income to farming and farm worker families to the extent of at least Rs 212 crores a year. In this calculation other income lost (for instance, of artisans) due to the demise of local rural economies is not incorporated. Though the government promised to deal with the issue of displacement from "humane" frame, the records estimated that 40 million people (of whom nearly 40% are adivasis and 25% dalits) have lost their land since 1950 on account of displacement due to large development projects and at least 75% of them have been awaiting rehabilitation. (Citizens Research Collective, www.sacw.net/Nation/Sezland_eng.pdf).

⁴ According to paradox of thrift if the propensity to save increases in an economy the realized saving of the economy decreases

Now we throw the question – *Is it not that in the long run economy would be adversely affected, unless the poor class is sufficiently compensated for their loss?* Consumption created by the high income group would be confined to goods of luxury. Unfortunately, the consumption of this luxury good is financed at the cost of hunger, distress of poor people who are loser due to SEZ.

Many studies were undertaken to examine the nature of impact of SEZ's on Socio economic conditions of people in many countries. Employment may be created both directly as well as indirectly due to SEZ. The ILO (1998) study concludes that SEZ does play a positive role in the employment generation in developing countries but employment generation by itself is not a sufficient condition for social welfare. It is to be seen whether the employment results in higher wages as compared to non-SEZ area and whether the working conditions are better. There is a great debate whether wages in SEZ are higher than non-SEZ area. The study by Kusago and Tzannatos (1998) points out to fact that wages in EPZ's were lower than outside in Taiwan and Mauritius, however, the finding is far from universal. Similar finding is being echoed in the study by (Madani 1999) who points out that any country-specific generalization is difficult. The next important aspect is employment of women. The study by Kusago and Tzannatos (1998) pointed out that initially employment of women is higher in SEZ as compared to the economy as a whole or employment outside SEZ creating an apparent illusion that supports the hypotheses that SEZ helps in empowerment of women. However, a detailed long run study would establish the fact the proportion of female employment tends to decline over time. The possible explanation is that woman are readily absorbed in low skill work at the lower wage rate at an early stage but as more and more skilled workers are required, women workers are replaced by men workers

The ILO (1998) study points out that in peak working periods workers were made to work 16 hours a day. The study by Kusago and Tzannatos (1998) also points out the fact that in China the average working hours vary between 54 to 77 hours per week raising concerns of health and safety issues. They further point out that jobs are not permanent, mostly of short term contracts. The study by ILO and Hayter (2001) also points out the fact that Labour laws even if applicable to zones are flouted by authorities and SEZ units.

Sunanda Sen and Byasdeb Dasgupta (2007) have rightly pointed out that SEZs are some sort of modern enclaves designed to reward capital by exploiting and displacing labour and engendering the livelihoods in the agrarian economy. They have justified this conclusion on the basis of field surveys in three SEZ units of India (Santacruz-Mumbai in Maharashtra, Noida in UP and Falta in West Bengal during 2004 and 2005) and on a recent ILO study for 100 countries for 1990 and 1999, along with 15 household surveys in these areas. Labour security was rightly considered as the matter of importance. Seven issues they concentrated on, are (1) employment security without unwarranted dismissals in terms of hire and fire strategies, (2) income security ensuring minimum wages in conformity with the local cost of living index., (3) security at workplace supported by insurance against accidents, payments against illness and overtime and protection of women in night shifts, (4) job security during the tenure of employment, (5) security in terms of right of trade unions to protest, (6) security in terms of support from family and community and (7) financial security in terms of savings, possession of bank accounts and any other financial asset in the absence of the social safety net for workers.

It is true that the SEZ's would help boost production of industrial goods in otherwise rural agricultural area. However, the question remains about the people who would consume those products. Clearly, such production would be produced at the cost of eviction of small and marginal landholders. The likely buyers of such products would be the rich urban people. For example, it was estimated that in India the annual tax concessions envisaged originally in the SEZ proposals is estimated to be five times the national rural guarantee budget i.e. alternatively could feed 55 million people per year (Bhaduri 2007). To expect that such tax concessions and subsidies provided to rich will ultimately benefit the poor by means of employment generation is foolish. For example, Bhaduri (2007) has cited the example of Tata steel in Jamshedpur which increased its production five times from one to five million tones between 1991 to 2005 but halved its workforce from 85,000 to 44,000. Even if we are optimistic that the long run path is smooth with minimum inequality we would still be worried about the immediate affect of selling of land. The question that remains is how the poor people without any assets can ensure livelihood. Since the poor are unlikely to have any training in entrepreneurship development it is most likely that money obtained from sale of

land is being used in raising conspicuous consumption. Thus ultimately the small and marginal landholders become landless labourers.

The other important aspect of special economic zones is the long run effect of the zones on environment. The Chinese experience has shown that long term effect of special economic zones on environment is adverse. The pollution costs due to SEZ in china are about 200 billion a year or about 10 % of its GDP. (Goswami Bhaskar 2007). Such high pollution costs as well as the effects of pollution on health are also major reason why we should rethink our SEZ strategy. SEZ's are also likely to increase regional imbalance as evident from Chinese experience.

Conclusion

The paper discusses about the possible impact of Special Economic zones on living conditions of people. Though achievement of high rates of growth, industrialization is all desirable and essential goals of any economy, it should, however be not at the cost of its people. An economy where high rate of growth, industrialization stimulates consumption of richer and well to do sections of the society at the cost of falling consumption of its weaker sections and rising inequality cannot be termed as Welfare State. The paper also emphasizes on the importance of Stress parameter (or psychological) parameter curving out the path of future consumption path in the economy. An economy which is basically agrarian in nature where most cultivators are marginal landholders, there is every likely possibility that the stress/trauma parameter would shape their future consumption pattern. In fact, these are the people with high value of MPC and their falling consumption would lead to a fall in aggregative consumption of the economy. This fall in aggregative consumption is not desirable for Modern state which promises growth with justice. Furthermore, it is also likely that the pattern of consumption would be that demand for luxury goods would rise at the cost of falling demand for necessities. This is kind of paradoxical result. The paper also shows that the ultimate pattern of intertemporal aggregate consumption is essentially dependent on stress parameter of majority of the people. The ideology that the benefits of high rate of growth driven through industrialization would eventually trickle down to the poorer section is difficult to accept as the magnitude and speed of trickle down remains unspecified.

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**RURAL-URBAN FRINGE LAND USE
TRANSITION THREATENS POTENTIAL INLAND
WATER BODIES : CONDITION CRITICAL**

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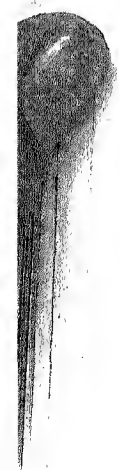


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RURAL-URBAN FRINGE LAND USE TRANSITION THREATENS POTENTIAL INLAND WATER BODIES: CONDITION CRITICAL

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Abstract

The right to water is chattel with land. Welfare of human life is fasten to land resources. Land degradation in some form or other is in half area of the state. Half of the problematic areas have been treated so far. Land zoning based on ecological aspect concept often evaluated on parameters- average depth to water table, land damage index, water quality (ph, salinity, alkalinity index and salt balance). Based on experience in mapping land use/land cover in 32 districts falling in Ghaghara-Gomti Basin and land use mapping at micro level in five districts of Sultanpur, Raibareli, Jaunpur, Pratapgarh, Barabanki suggest that land damage index in Jaunpur branch sub basin (JBSB) is 0.182.

The position of composite index of development of land use (2002-03), according to State Land Use Board (SLUB) regional ranking is, Western- first, Eastern- second, Central- third and Bundelkhand- fourth in the state. Better planning for limited land to cater the need of present and future is necessary. Conservation of land resources may take us on long path of optimum land use and sustainable development. Presently land and land resources are in peril especially in fringe areas of rural and urban divide due to unplanned activity in lack of master plan for land best designated use.

Introduction

Cities are engines of growth. But the unplanned sprawl of cities creates the problem of urban-rural divide on many fronts. The conflicts of interest on priority of utilization of land resources and encroachment diminish land resources due to increasing urbanization and industrialization. Water reservoirs are diminishing around cities and groundwater table is dipping day by day. Therefore, potential aquifer in and around cities-rural fringe should be declared protected zone and

encroachment prohibited. The state is supposed to ensure that its subjects lead a comfortable life in a dignified manner.

'It is the duty of government to make it difficult for people to do wrong, easy to do right', said W. E. Gladstone.

Discussions and Options

At present there is no penalty for a person who has converted his agricultural land into an abadi land. Section 143 of UPZALR Act, 1951 needs drastic changes. A provision in the law to prevent misuse of land should be made. The term "misuse" should be defined in such a way, so as to cover all aspects, which create hindrance in proper use of the land.

State Land Use Board may be provided statutory base and invested with necessary powers.

Formulation of comprehensive legislation with the various aspects of optimum use of land resources for the benefit of population as a whole is necessity of time. The proposed Act may include matters such as:

- i. Definition for classification of all types of land referred in UPZLRA, 1950 and UP Planning and Development Act, 1973 and Land Acquisition Act, 1984.
- ii. RS/GIS maps suggesting current various uses of land taken into consideration.
- iii. Cropping pattern should be decided for each area depending upon the suitability/capability of land and demand. Penal provisions required to punish the guilty on violation of land policy.
- iv. Master Plan for at least 25 years of every district should be known to every one who matters in planning and project implementation.
- v. The land use policy should reflect aspiration of people and should fulfil the need of people of the area.
- vi. The outflow from rural to urban may be checked addressing regional imbalances in development.

- vii. Small scale cottage industry may provide both employment and income in case of failure of agriculture due to natural calamities of drought and flood and any other epidemic.
- viii. Deterioration of soil and excessive use of water should also be included as integrate part of programs for 'maximizing land use'.
- ix. In any land use policy, the following objective should specifically be included:
 - a. Appropriate preventive measures to prevent any further deterioration in productivity of land;
 - b. Integration in formulation and implementation of:
 - i. Water resources management
 - ii. Forest management; and
 - iii. Urban planning within the overall resources allocation.
- x. We have also to consider the Industrialization as well as growing demand for abadi, particularly in those areas, which are nearer to cities when the land is acquired for colonization purposes. Effort should be made to acquire non-agricultural land i.e. banjar, wasteland etc. for developmental work. For industrial and commercial purposes, only wasteland should be acquired, how far it may be from the main city. In case, if not possible for any reason, then the Company management should be asked to develop *banjar* land at some other places.
- xi. For successful implementation of any land use policy, computerization of Khasra-khatauni-which gives an idea of nature and extent of land use in the village, must give more comprehensive information.
- xii. Maximum area for residential purposes should also be fixed so that the 'have' community may not misuse land by constructing palatial buildings.
- xiii. Plantation on government land by people should be allowed to protect environment, recharge water and absorb carbon emission.
- xiv. Education should infuse Compassion, Ethics, Integrity and Courage to enable persons to standup for social goods and justice.

- xv. What is happening to agricultural lands, grasslands, wetlands, forests and freshwater system and even earth capacity to support nature and civilization around bulging ugly cities? How much human impact on ecosystems has altered the degree to which agricultural land have been degraded around the fringe areas of rural-urban divide by the buildup of salts and the loss of nutrients, dead zones caused by pollutants flowing into the rivers from sewer drains, many of the statistics are staggering: half the world's wetlands have been lost in the past century, 80% of grasslands are suffering from soil degradation; 20% of dry lands are in danger of becoming deserts; and groundwater is being depleted almost everywhere. The findings collected through satellite imaging and other forms of remote sensing, target critical areas deserving attention and pinpoint likely trouble spots in the future town planning under climate change contexts.
- xvi. Inescapable fact is economies cannot remain for ever healthy in an unhealthy environment. Natural world is an economic asset that delivers irreplaceable goods and services. Ecosystems temper climate, purify and store water, recycle wastes, produce food and support all other things that humanity needs. Despite the universally acknowledged importance of these life-creating natural networks, the entire march of human progress has occurred against a backdrop of landscapes transformed from their natural state to suit the needs of agriculture and industry.
- xvii. And in this process cities diverted and despoiled their rivers and re-engineered their inland water bodies and wetlands. Potential groundwater aquifers are encroached. Mining of their groundwater reservoirs have caused river to dry along the city stretches under population pressure increasing day by day by migration of rural population to urban and poor shifting from urban to fringe areas.
- xviii. The genius of the market economy is that it enables a city/state to buy from other places or re-create through technology some of the benefits once derived from the local habitat. The genius of the nature is that ecosystems can absorb shocks and sustain damage and still rebound.

Outstripping capacity

- xix. One reason governments have been slow to respond to these concern is that land is still churning out plenty of goods-enough fiber, grain and water to support 16.6 crore population of which 3.45 crore are urban (20%). Many are malnourished, of course mal nutrition is more evident in surrounding villages, but that's primary a matter of bad distribution.

Algal booms, fed by pollution and agricultural run-off, are increasing and lakes are becoming stratified and depleted of oxygen. All these changes have taken place just in 20 years. We claim increase in food basket and livestock production, but the trade offs have been depleted, polluted water supplies, exhausted soils and destroyed habitats.

Legislative/Policy framework in the State

(a) Land

U.P. (Urban) Zamindari abolition and land reform Act 1976,
U.P. Zamindari development and land management Act 1976
Land Acquisition Act 1997
Urban Land (Ceiling and regulation) Act 1976,
U.P. Soil and Water Conservation Act 1963
U.P. Urban Planning Act 1973
U.P. Consolidation Act 1953
U.P. Ceiling on Cultivation Act 1960
U.P. Industrial area development Act 1976
Indian Easement Act 1882
U.P. Revenue Act
U.P. Construction work regulation Act 1958
U.P. Awash Vikash Parishad Act 1965
U.P. Forest Panchayat Act
U.P. River Valley Project Act 1999

(b) Water Resources development and management

Uttar Pradesh Water Resources Management and Regulatory Commission Act, 2008

State Participatory Irrigation Management Act, 2009.

National Ganga River Basin Authority, MOE Notification 20th Feb. 2009

Uttar Pradesh State Ganga River Conservation Authority, MOE
Notification, 30th Sept., 2009.

Northern India Canal and Drainage Act, 1873. This is the most significant law relating to irrigation, navigation and drainage, which has withstood test of times for more than 130 years.

(c). Water Pollution:

The Rivers Boards Act, 1956,

The merchant shipping amendment (Act 1970),

The Water (prevention and control of Pollution) Act of 1974 revised 1988

The Water (prevention and control of Pollution) Rule 1975

The Water (prevention and control of Pollution) Cess Act of 1977: Revised in 1997 & 2003

The Water (prevention and control of Pollution) Cess Rule of 1978:

U.P. Water (Commercial effluent and Sievage disposal Rule 1981)

(d). Air Pollution:

Indians Boilers Act 1923, Motor Vehicle Act 1939 (Revised 1988)

The Factory Act 1948 (Revised 1987)

The Industries (development & regulation) Act 1951,

The Mines and minerals (Regulation and development) Act 1947 (Revised in 1986)

The Air (prevention and control of pollution) Act 1981 (Revised in 1987)

The Air (prevention and control of pollution) Rule 1982

National Ambient Air quality standard notification, 1994

(e). Forestry and Bio-diversity

The Wild life (protection) Act 1972

The Indian Fisheries Act 1897

Indian Forest policy 1927

Bio-diversity cruelty abatement Act 1960

Bio-diversity cruelty abatement Rule 2001

Zoo establishment Rule 1992

State /UT small forest produce Act 2005

Guide lines for change in forest land use for other purposes 1994

U.P. (tree conservation in Rural and Hill areas) Act 1976

U.P. building wood and other produce transport rule 1978

The Forest (conservation) Act 1980 revised in 1988

The Forest (conservation) Rule 2003

Bio-diversity Act 2003

Bio-diversity Act 2002,

Wild life (protection) Rule 1995

Panchayat notified area extension Act 1996
Bio-diversity Rule 2004

(f). Radiation

The atomic energy Act 1962
Radiation protection Rule 1971

(g). Pesticides

The poison Act 1919
The prevention of food adulteration Act 1954
The Factory Act 1948 (revised in 1987)
U.P. Agricultural diseases and pest control Act 1954
The Insecticides Act 1968

(h). Environment in General

The Environment protection Act 1986; Patent Act 1970, Hazardous Chemical Manufacturing, Storage and Import Rule 1989 (revised in 2000), Environment (Protection) Rule 1986, The noise (pollution control and regulation) Rule 2000 (revised in 2002), Hazardous Effluents (Management and Handling) Rule, 1989 (revised in 2003), Hazardous microbial, Hereditary Effected micro-organism or Cell Manufacturing Experiment, Import and Storage Construction Rule, 1989, Public Insurance Act 1991 (revised 1992, 1993), Environmental Impact Assessment Notification 1994 (revised 2005), National Environmental Juridicature Act 1995, National Environment Appellate Authority Act 1997, Recycle Plastic Manufacturing and Use Rule 1995 (revised 2003), Environment (Establishment of Industrial Project) Rule 1999, Batteries (Management and Handling) Rule 2001, Bio-Medical Waste (Management & Handling) Rule 2001, Urban Solid Waste (Management and Handling) Rule 2000, Central Groundwater Board Authority, 1997 (revised 2000), Fly ash Filter and Expense Notification 1999, (revised 2003), Eco Mark Notification, 1991, Cosmetic Substance Eco-friendly Labeling Notification 1992, Chemical Accident (Emergency Planning and Preparedness) Rule, 1996, Ozone Non-Degradation Substance (Regulation and Control) Rule, 2000.

Environmental Policy

Policy: State Environmental Policy, 2009, National Forest Policy 1988, National Water Policy 2002, Tourism Development Policy 1990, National Population Policy 2000, Abetment of pollution related policy statement 1992, National conservation policy and environment and development policy statement 1992, National environment policy 2006, U.P. State forest policy 1998, U.P. State minerals policy 1998, U.P. State Tourism Policy 1999, U.P. Agriculture policy 1999 and U.P. Water policy 1999.

Conclusion

Despite armed with many legal and policy framework, in absence of enabling authority invested to state land use boards, all efforts appear to fail in the past. Let us provide teeth to SLUB. In order to meet challenges before the country to support and meet the increasing demand of population and better standard of living, the necessity for a National Land Use Policy was felt. Accordingly, National Land Use Policy Outline and Action Points was prepared and placed before the National Land Use and Wasteland Development Council under the Chairmanship of Prime Minister. The council agreed to the adaptation of policy.

Framing of suitable legislation and its sincere enforcement is the key of success by imposing penalties, on violations thereof. Thus, the problem of land management of rural urban fringe is the issue of governance and requires support of all in its implementation.

**EDUCATIONAL FACILITIES IN FRINGE AREAS
OF AZAMGARH DISTRICT – A CASE STUDY**

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Paper Presented at the
National Seminar on
Problems and Management of Rural Urban Fringe

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Educational Facilities in Fringe Areas of Azamgarh District -A Case Study

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Introduction

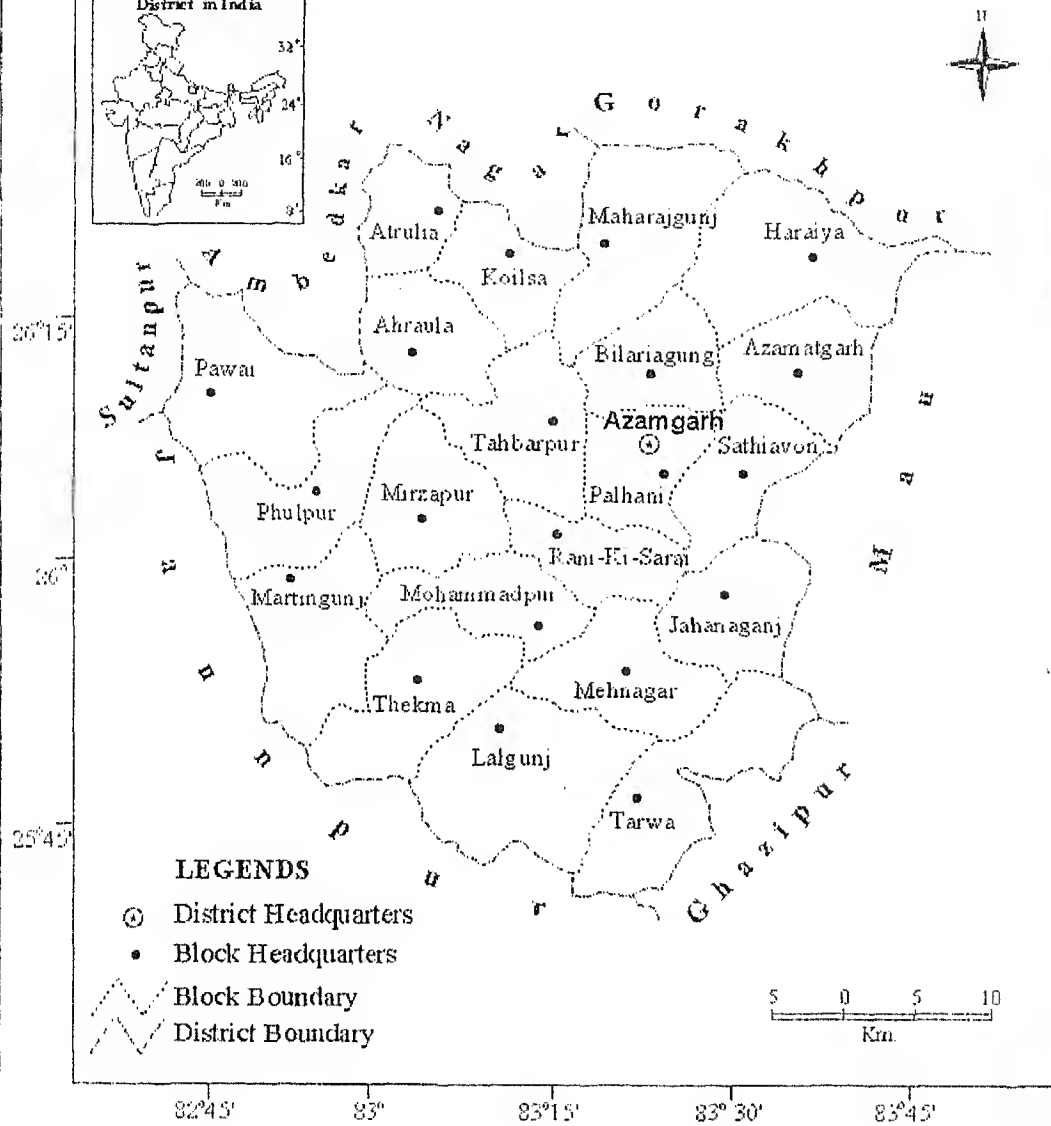
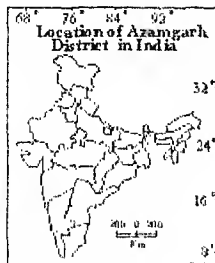
Education has been considered as an important factor in achieving rapid development through technological progress and in creating a social order with social justice and equal opportunities. Earlier education was considered as an investment in human capital contributing to higher productivity and income. The successful national planning and development policies for ensuring balanced development is possible only when socio-cultural aspect like education is looked into proper perspective. Education proves an instrument for social change, development and equity. The first important pre condition is that adequate opportunities for education are available and different groups in societies have access to them. The education sustains the human values which contribute to individual and collective well-being. It forms the basis for life long learning and inspires confidence to face challenges. The researches have shown that the life expectancy rises by as much as two years for every 1% increase in literacy.

Objectives

The objectives of this paper are to assess the educational facilities in fringe areas of Azamgarh district.

To examine the inequalities among centre and fringe area of the district.

AZAMGARH DISTRICT Administrative Divisions 2004



Study area

Azamgarh district occupies 4234 sq km. of Uttar Pradesh. It is located between 25°38" and 26°27" north of latitude and the meridians of 82°40" and 83°52" east of longitude. It is bounded by Mau on the east, Gorakhpur on the north, Ghazipur on the south east, Jaunpur on the south west, Sultanpur on the west, and Ambedkar Nagar on the north west. The district Azamgarh is a level plain with out any hills or natural eminence. The variation in the surface been caused by the banks of the small streams that drain it. Except the proximity of the Ghaghra, the land slopes very gently towards the south east. The district has an immense reservoir of fresh water, stored in the more porons, coarse strata, beneath the level of saturation, which is easily accessible by means of ordinary borings in the form of wells. The few deep boring that have been made, have given proof of the prevalence of artesian condition in some parts of the district and in a few cases artesian borings have been made with successful results. A considerable amount of success has been attained in tube wells boring experiments in the district at many places. The climate of the district is moist and relaxing except in winter and hot season.. The vast potential of human resources needs to be assessed and harnessed in the context of economic and social planning. Therefore, the study of population characteristics is important not only in the context of overall development of the district but also for the reason that the manpower constitutes a major input in the agricultural activity.

Azamgarh is the highest populated district in the eastern Uttar Pradesh. According to 2001 census the district had a population of 3.94 million persons with 1.95 million males and 1.99 million females. Among the districts of Uttar Pradesh, Azamgarh is the second largest populated district only after the Kanpur

Nagar (4.13 million). But in term of area Azamgarh stands sixth position among the district of eastern U.P. and occupies about 5 per cent of Eastern U.P.'s total area, while Sonbhadra stand first with 8 per cent and is followed by Allahabad (6.17 per cent), Bahraich (5.52 per cent), Mirzapur (5.32 per cent) and Sultanpur (5.22 per cent). The literacy rate for the district during 2001 census was 45.44 per cent. Palhani block with 48.31 per cent, records the highest literacy rate followed by Azmatgarh 47.83 per cent, Rani-ki-Sarai 47.76 per cent, Mirzapur 47.50 per cent, Lalganj 47.37 per cent, Tarwa 47.12 per cent, Atraulia 47.07 per cent and Mohammadpur 47.01 per cent. The lowest literacy rate of 39.76 per cent is found in Maharajganj block

Data base and methodology

For the present study the data are obtained from the secondary sources i.e. statistical hand book and village directory of Azamgarh district. The methodology adopted here with the help of certain indicators of educational development considering the literacy rates, the no. of institutions, and the no. enrolment. The is again supplemented by simple pooling all the sum total rank orders of individual variables and giving the final rank order. Presenting the data on the four variable of educational development. Ranks are then summed up for each variable. Thus pooling together all the rank orders of the individual variable and arriving at the composite rank order has been made in table -5. Based on this table the inequalities among the central block and fringe block in educational facilities are shown. Thus as per the result of the table 5, rani ki sarai is the much better educational facilities whereas martinganj is the lack of educational facilities.

Literacy rate in Azamgarh district

The fringe area and central area inequalities in literacy would be evident from the analyses of the data presented in table 1. In table 1 the block wise total population, male and female literacy rates for the year 2001 have been presented.

Table 1
Block-wise Literacy Rate in Azamgarh-2001

Block	Population	Male	Female	Literacy rates
Rani ki sarai	170721 (4)	85851	84880	47.71 (2)
Palhani	183289 (2)	94251	84064	48.31 (1)
Thakur	189053 (1)	91363	97674	43.81 (3)
Martinganj	179458 (3)	85913	93523	42.38 (4)

Source: Statistical handbook of Azamgarh district 2001.

A comparison of the rank order of the literacy rates of Palhani show high literacy rate but in this block according to population it ranked in the second place. The same picture is revealed in case of Rani ki sarai this block also shows high literacy rate but due to the high concentration of population it comes on the fourth rank. This table provide a clue to understand the inequalities of the central and fringe areas in literacy rate, because both of them are located at centre where literacy rates are high due to the presence of adequate educational facilities and awareness among people, where as the remaining two fringe blocks though have high concentration of population but here literacy rate is very low.

Number of Educational Institutions

Number of educational institution of different levels per one lakh population is another important quantitative indicator for the educational development. Table 2 reveals the inequality in number of educational institutions in the block.

Table2
Block Wise Number of Educational Institutions per Lakh Population in
Azamgarh District 2001

Block	Primary schools	Senior primary schools	Higher secondary schools	Rank order score
Rani ki sarai	90.66 (1)	24.29 (1)	5.68	3.5 (1)
Palhani	67.87 (4)	18.87 (2)	6.30	2 (2)
Thekma	76.52 (4)	10.64 (4)	5.68 (1.5)	7.5 (3)
Martinganj	72.79 (3)	11.75 (3)	4.71 (3)	9 (4)

Source: Statistical handbook of Azamgarh district 2001.

Block Rani ki sarai and Palhani show high educational institutions both of them ranked first and second but the fringe block Thekma and Martinganj are again ranked third and fourth.

No. of enrolment ratio

Enrolment at different levels of education as a percentage of the population of the school going age group is one of the important variable of educational development.

Table-3**Block wise enrolment ratio in Azamgarh district 2001**

Block	Primary School		Senior primary school		Higher secondary school		Sum of the rank
	Boys	Girls	Boys	Girls	Boys	Girls	
Rani ki sarai	4.37 (1)	4.47 (1)	3.73 (1)	4.05 (1)	0.41 (1)	2.40 (4)	9
Palhani	3.76 (3)	3.97 (2)	3.66 (2)	3.17 (2)	0.33 (2)	2.51 (3)	14
Thekma	3.13 (4)	3.41 (4)	3.55 (3)	2.68 (3)	0.27 (3)	4.95 (1)	18
Martinganj	3.97 (2)	3.90 (3)	2.68 (4)	1.70 (4)	0.15 (4)	4.08 (2)	19

Source: Statistical hand book of Azamgarh district 2001

Table 3 reveals the block-wise enrolment ratio of all levels of education for the year 2001. It has been shown that enrolment ratio is high in rani ki sarai and palhani block which are known to be better facilities of education because both of the blocks are situated in the central part of the district where better facilities are provided. Whereas Thekma and Martinganj are situated in the fringe area of the district it has been shown that enrolment ratio which are said to be lack of better educational facilities.

Teacher ratio in educational institutions

In table 4 it has been shown that there exists variation in the teacher ratio. Moreover the ratio has not remain constant for all the levels of education in particular block.

Table 4
Block-Wise Teacher Ratio in Educational Institution in Azamgarh District
2001

Block	Primary school	Senior primary school	Higher secondary school	Sum of the rank order
Rani ki sarai	490 (1)	127 (2)	67 (3)	6
Palhani	429 (2)	131 (1)	138 (1)	4
Thekma	275 (3.5)	79 (3)	114 (2)	8.5
Martinganj	275 (3.5)	50 (4)	60 (4)	11.5

Source: Statistical hand book of Azamgarh district 2001

Table 5
Block-Wise Sum Total Rank Orders of all the Individual Variables

Block	Rank Order Score				Aggregate composite rank order
	Literacy rate	Institutions	Enrolment	Teacher ratio	
Rani ki sarai	2	1	9	6	18
Palhani	1	2	14	4	21
Thekma	3	3	18	8.5	32.5
Martinganj	4	4	19	11.5	38.5

Source: Statistical hand book of Azamgarh district 2001

Presenting the data on the four variable of educational development. Ranks are then summed up for each variable. Thus pooling together all the rank orders of the individual variable and arriving at the composite rank order has been made in table -5. Based on this table the inequalities among the central block and fringe block in educational facilities are shown. Thus as per the result of the table 5, rani ki sarai is the much better educational facilities whereas martinganj is the lack of educational facilities.

Conclusion

The empirical evidence of the present paper indicate that there exists central and fringe areas inequalities in educational development.

In order to remove the regional inequalities, considering the socio-economic and geographical features of the region appropriate regional planning for education at grass root level is required.

Government should set up higher level institutes in these areas, with proper facilities.



15

**RAPID URBAN SPRAWL IN LARGE CITIES AND
ITS SWIFT ENCROACHMENT ON
AGRICULTURAL FRINGE LAND OF UTTAR
PRADESH**

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Paper Presented at the
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Rapid Urban Sprawl in Large Cities and its Swift Encroachment on Agricultural Fringe Land of Uttar Pradesh

By

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Abstract

Uttar Pradesh one of the most congested and populated state of India, if placed in the hierarchy of countries its position would be sixth of the world is no exceptional. It accommodates 166.2 million populations with a density of 690 persons per square kilometer. The decadal growth rate of urban population in U.P. has been reported to be 33.0 per cent during 1991-2001, which is ahead than the all India average urban growth, i.e. 31.5 per cent. This rapid growth of urban area has transformed to a great extent the land use pattern of various cities of the state of Uttar Pradesh. As often observed due to market forces a large chunk of fertile lands on the fringes of mainly large cities are acquired hurriedly but they are urbanized at slow pace. In this process not only the encroached agricultural land of fringe are affected, but the entire neighborhood of agri-system is adversely influenced. Urban sprawl or urbanization is an unstoppable process, but the need of the present hour is to have a development with a pinch of sustainability in it, so that all round development could be achieved of the rich as well as the poor.

Introduction

Urban sprawl may be defined as the scattering of new development on isolated tracts, separated from other areas by vacant land (Ottensmann, 1977). It is also often described as leapfrog development (Gordon and Richardson, 1977) as observed in all the major cities across the world. The cities are growing in all directions resulting into changes in urban land use, reflected on the border or peripheral rural areas as compared to that of the city centre. In the midst of urban and industrial expansion, there is increasing pressure on important resources predominantly in the metropolitan cities. Urban spread out has been blamed for disorganized use of land resources and energy and large scale intrusion onto the agricultural lands. As the cities enlarge, agricultural land and habitats like forest etc. are transformed into land for housing, roads, industry etc. The result is increase in the built up area and related changes in the land use patterns, causing loss of productive agricultural lands, forest cover, other forms of greenery, loss in surface water bodies, depletion in ground water aquifers and increasing levels of air and water pollution; causing environmental problems.

How much land is actually transitioning from farm to non-farm use? This is a question that needs to be addressed if we actually need to analyze the land use pattern of any state and how actually the urban areas have manufactured and modified its fringe areas "The government itself puts the figure at 1.5% of net sown area between 1990 and 2003, or more than 21 lakh hectares have gone to non-farm activity. The actual figures could be much higher. If we accept that 21 lakh hectares of crop land have been diverted for non-agricultural use, and if this area were brought under wheat, it would amount to a mind-boggling 57 lakh tonnes of produce which could have fed more than 4.3 crore hungry people every year. Had there been

the political will to prevent this diversion, the number of hungry would have declined by over 12%. Since the area diverted is more than 21 lakh hectares, it is clear that policymakers are implementing a blueprint to put India on the path to food insecurity" (Bhaskar Goswami).

"In the past decade or so, there has been a major diversion of land meant for wheat and rice cultivation into commercial crops such as oilseeds and cotton. Further, as per one estimate, 7.5 lakh hectare of agricultural land are being diverted to other uses for urbanization and industrialization such as real estates, roads, SEZs, industrial parks every year. A revitalization process for wasteland available in plenty in the country is necessary, but it has not yet started in a big way" (Indra, 2007). "According to the latest economic survey (2009) conducted by Centre for Monitoring Indian Economy (CMIE) "Decline in acreage and expected fall in yield will lead to a 16% drop in kharif foodgrain production. It is expected to fall to 98 million tonnes from 117.7 million tonnes produced in kharif 2008." Further if we analyze just the production rate of wheat one of the major food crop we observe that its production per hectare was 2708 kg in the year 2000-01 but it decreased to only 2602 kg per hectare in 2004-05 that is at the national level the per hectare production of wheat has dipped 106 kg". This is when as well known that the population growth have till now shown an upward trend.

The above mentioned data analysis brings to the fore line the decline of the fertile agricultural land that are being driven away from the agricultural land use pattern to the urban land use pattern. Thus the problem of expanding of city centers to its peripheral region is both complex and complicated. And this land use change is the end result of numerous interacting factors arising from different levels of associations of human-environment systems, which differs in time and space. Driving forces can be slow with long turnover times, which decide the boundaries of sustainability. Changes are generally driven by a combination of factors that work progressively and factors that happen irregularly. Thus it is necessary to measure and monitor land use changes over space and time for sustainability.

Land Utilization in Uttar Pradesh:

The condition of the Uttar Pradesh one of the most populous and the forth-largest state of the India with a total geographical area of 240918 sq.km accommodates 166.2 million populations with a density of 690 persons per square kilometer. The economy of the State to a great extent directly or indirectly depends upon agriculture. But still the data analysis prove that out of 24.2 million hectares of reported area 68.6 per cent is cultivated land. Approximately 31.4 per cent of fertile land is being use for non-agricultural uses. Only less than 7.0 per cent is forest land and that too is not effectively covered by forests, when according to forest policy there should be one-third forest cover for healthy environment. Adverse environmental impact is now reflected in falling yield and increasing other fallow and current fallow lands as it is becoming uneconomical to cultivate. For example in Sultanpur, Pratapgarh, Lucknow and Unnao districts other and current fallow lands have increased upto 15.0 per cent. In U.P. cereal production was 41.76 million metric tones in 2001-02 which has fallen to 37.57 million metric tones in 2004-05 due to land degradation. During last 50 years we have treated most of the wastelands and added mostly with agricultural land, but it is reported that after few years of cropping, land is again becoming infertile and uneconomical. Expert opinion is that after treatment of wasteland, it should be brought under plantation rather than bringing under cultivation. Industrialization, urbanization and globalization are the world phenomenon. Uneconomic agriculture, landlessness among

rural masses and quest of modernization has created momentum to migrate from rural to urban areas that too towards metropolitan cities, where congestion and pollution is unimaginable. During last fifty years the land under non-farm use related to mainly urban has almost doubled, which would continue to grow. More than 50.0 per cent districts are showing above the state average, i.e., 10.6 per cent land under non-farm use. In Ambedkar Nagar, Kushi Nagar, Sant Ravi Das Nagar and Ghaziabad districts, the land under non-farm use has crossed beyond 15.0 per cent and many other districts are on the same trend.

If we analyze the land utilization during 2002 and 2005 we find that during these five years the land put to non-agricultural uses has risen 5.3 per cent and the current fallow has risen to 18.6 per cent and as a result the land which is lifeline, i.e. forest land and net area sown has decreased to 0.1 per cent and 0.8 per cent respectively. The land put to non-agricultural uses is occupying about 10.9 per cent area and in most of the cases it is expanding on most of the fertile lands when this land is important for food grain production for feeding the teeming millions. We are in deficit of 23 per cent of forest cover which is necessary to meet the National Forest Policy and as well to provide the better environment and retain the fertility of the soil urbanization and industrialization are the dialectal phenomenon which cannot be stopped but we must have certain policy to control their haphazard growth. China is the example before us where urbanization and industrialization is far ahead but they are progressing in control manner, most of the Chinese town and cities are growing vertically and not horizontally like India also unlike India the smaller towns are growing faster but horizontally whereas the big metropolitan cities are stagnant in population and land growth (see Table 1).

Table 1: Land Utilisation in Uttar Pradesh: 2002 & 2005

Land Use	Percentage Area		Percentage Growth 2002 & 2005
	2002	2005	
Total Area of U.P.	24202000 (100.00)	24201000 (100.00)	
Forest Land	6.98	6.97	-0.06
Land Put to Non-Agricultural Uses	10.38	10.94	5.33
Barren & Uncultivable Land	2.46	2.19	-10.92
Pasture and Grazing Land	0.29	0.26	-9.86
Miscellaneous Trees	1.47	1.42	-3.38
Cultivable Waste Land	2.14	1.88	-12.36
Fallow/Other than Current Fallow	2.58	2.37	-8.16
Current Fallow	4.24	5.03	18.62
Net Area Sown	69.47	68.94	-0.77

Source: (a) Based on Statistical Abstract of U.P., 2006.

(b) Sankhyakiya Patrika of U.P.

Annual Growth Trend of Land Put to Non-Agricultural Uses

The annual growth rate of land put to non-agricultural uses in Uttar Pradesh is not uniformed. During 2001 and 2002 the growth rate was 3.2 per cent which dropped to 1.6 per cent during 2002 and 2003 but again it has risen to 2.1 per cent during 2004 and 2005. It is expected that during recent years the growth rate is much faster (see Table 2).

**Table 2 : Annual Growth Trend of Land Put to Non-Agricultural Uses
in Uttar Pradesh, 2001-2005**

Year	Land Put to Non-Agricultural Uses	
	Percentage from Geographical Area (2005)	Percentage Growth (2001-05)
2001	9.82	--
2002	10.39	3.16
2003	10.55	1.59
2004	10.72	1.60
2005	10.94	2.09

Source: Based upon Statistical Abstract of U.P., 2007.

Land Put to Non-Agricultural Uses in Regions of Uttar Pradesh

Since Uttar Pradesh is one of the largest States the land put to non-agricultural uses in rural and urban areas has been worked out according to its four geographical regions:

[(i) Western region, (ii) Central region, (iii) Bundelkhand region and (iv) Eastern region] during 2001 and 2008. Comparatively Western region is highest urbanized in Uttar Pradesh but its growth rate during 2001 and 2008 is less than the State average in both rural and urban land put to non-agricultural uses. The Central region has recently (2008) surpassed the State average in its rural and urban land put to non-agricultural uses. The growth of land put to non-agricultural uses in rural areas has risen to 19.1 per cent whereas in urban areas the growth was 43.0 per cent during 2001 and 2008. Similarly in Bundelkhand during last eight years the growth rate has gone upto 17.6 per cent in rural areas and 30.6 per cent in urban areas. In case of Eastern region the growth rate in rural and urban areas of land put to non-agricultural uses was higher than the Western region but quite far behind than the Central region and Bundelkhand, i.e., 11.3 and 4.8 per cent respectively. Overall the growth rate of total land put to non-agricultural uses was below the State average in only Western region but in Central region, Bundelkhand and Eastern regions it was quite high, i.e. 22.2, 18.5 and 10.7 per cent respectively. The growth of rural and urban land put to non-agricultural uses is alarmingly high in Central region and Bundelkhand which needs an urgent policy and control (see Table 3).

Table 3: Land Put to Non-Agricultural Uses in Regions of Uttar Pradesh, 2001 & 2008

Region	Percentage from Geographical Area							
	Rural		Percentage Growth	Urban		Percentage Growth	Total	Percentage Growth
	2001	2008	2001-08	2001	2008	2001-08	2001	2008
Western Region	9.50	10.23	7.72	2.19	2.20	0.45	11.69	11.96
Central Region	9.10	10.84	19.13	1.36	1.94	43.02	10.46	12.78
Bundelkhand Region	6.98	8.21	17.61	0.49	0.64	30.58	7.47	8.85
Eastern Region	10.54	11.74	11.32	1.11	1.16	4.79	11.65	12.90
Total Uttar Pradesh	9.51	10.67	12.17	1.41	1.42	0.50	10.93	12.09

Source: Based on Sankhyakiya Patrika of U.P. (upgov.up.nic.in/engspatrika)

Districts of Fast Growth (Above Average) Land Put to Non-Agricultural Uses

During 2008 there are districts in Uttar Pradesh where rural land put to non-agricultural uses has gone up quite high than the State average 10.7 per cent. For example highest proportion of land put to non-agricultural uses are occupied in districts like Ghaziabad 18.4, Ambedkar Nagar 17.6, Kushi Nagar 17.4, Sant Kabir Nagar 15.3, Ballia 14.8, Ghazipur 14.0 per cent. While calculating the growth rate during 2001 and 2008 we worked out the average annual growth rate of rural areas put to non-agricultural uses and the State average comes 1.5 per cent there are districts where the annual growth rate is manifold than the State average, for example, Chitrakoot 10.4, Faizabad 8.7, Mahoba 6.6, Kanpur Urban 6.5, Unnao 5.6 and Ambedkar Nagar 5.0 per cent. In most of the cases the land put to non-agricultural uses in rural areas is in fact influenced by neighbouring towns and cities which are in the process of transition to become urban land. For vertical industrial and urban growth or vertical settlements in rural areas there is an urgent need of government policy which should be strictly implemented through the town and country planning (see Table 4).

Table 4: Districts of Fast Growth (Above Average) Land Put to Non-Agricultural Uses in Rural Areas of Uttar Pradesh, 2001 & 2008

Districts	Percentage of Rural Land Put to Non-Agricultural Uses (2008)	Percentage Growth of Land Put to Non-Agricultural Uses (2001 & 2008)	Percentage Average Yearly Growth (2001-08)
Saharanpur	13.30	14.38	1.80
Meerut	12.60	16.62	2.08
Ghaziabad	18.38	19.30	2.41
Bulandshahr	11.08	21.65	2.71
Aligarh	9.50	13.97	1.75
Ferozabad	9.93	31.20	3.90
Pilibhit	11.31	13.54	1.69
Etawah	10.02	22.01	2.75
Hardoi	8.61	13.09	1.64
Unnao	11.60	44.52	5.57
Lucknow	11.65	46.23	2.03
Rae Bareli	13.00	24.92	3.12
Kanpur Dehat	8.53	23.50	2.94
Kanpur Urban	11.12	51.70	6.46
Faizabad	11.15	69.71	8.71
Mahoba	12.36	52.57	6.57
Lalitpur	8.00	26.59	3.32
Chitrakoot	8.98	83.39	10.42
Bahraich	12.65	25.27	3.16
Gorakhpur	12.91	17.42	2.18
Deoria	12.22	19.51	2.44
Ballia	14.82	19.34	2.42
Ghazipur	14.04	23.17	2.90
Varanasi	13.67	25.39	3.17
Kushinagar	17.37	12.36	1.55
Ambedkar Nagar	17.55	39.84	4.98
Mahamaya Nagar	10.06	24.00	3.00
Sant Kabir Nagar	15.28	32.98	4.12
Barabanki	13.83	16.09	2.01
Total U.P. Rural	10.67	12.17	1.52

Source: Based on Sankhyakiya Patrika of U.P. (upgov.up.nic.in/engspatrika)

Block-wise Growth of Land Put to Non-Agricultural Uses

If you go to micro-block level to understand the fast growth of rural land put to non-agricultural uses, we find at least 29 blocks are showing very fast growth rate, there are blocks like Razapur block, Loni block in Ghaziabad, Morava block in Muzaffarnagar, Kashi Vidyapeeth block in Varanasi and Kaurihar block in Allahabad where land put to non-agricultural uses is occupying more than one-fifth of the total area of each respective block. There are blocks where annual growth rate is more than 10 per cent which are Dabri block in Gautam Budh Nagar, Sarojininagar block in Lucknow, Rasulabagh block in Kanpur Dehat and Bhitargaon in Kanpur Nagar (see Table 5).

Table 5: Block-wise Growth of Land Put to Non-Agricultural Uses, 1998 & 2008

District/Block	Percentage from Geographical Area of Respective Block (2008)	Percentage Growth (1998-2008)
Gautam Budh Nagar		
(a) Jewar Block	15.03	81.88
(b) Dadri Block	9.62	116.56
Ghaziabad		
(a) Bhojour Block	13.82	23.55
(b) Muradnagar Block	15.07	24.42
(c) Razapur Block	23.13	23.46
(d) Loni Block	36.80	23.46
(e) Dhaulana Block	16.31	23.48
(f) Hapur Block	14.53	23.52
(g) Simbhawali Block	13.45	23.77
(h) Garh Mukteshwar Block	13.46	23.53
Baghpat		
Binauli Block	11.31	17.44
Muzaffarnagar		
Morava Block	23.43	26.19
Meerut		
Hastinapur Block	18.93	18.56
Bulandshahr		
Sikandrabad Block	13.81	55.48
Aligarh		
Bijouli Block	16.27	42.96
Mathura		
Mathura Block	17.61	37.25
Saharanpur		
(a) Ballia Keri Block	18.21	33.03
(b) Sarsawan Block	14.93	14.89
Bijnore		
Nazibabad Block	8.73	44.00
Varanasi		
Kashi Vidyapeeth Block	24.82	90.72
Lucknow		
(a) Mal Block	10.01	30.00
(b) Bakshi-ka-Talab Block	12.92	21.54
(c) Chinhaat Block	31.28	83.28
(d) Sarojininagar Block	18.83	109.82
	8.89	34.02

(e) Gasaiganj Block	11.68	43.73
(f) Mohanlalganj Block		
Kanpur Dehat		2001-08
Rasulabad Block	11.11	149.51
Kanpur Nagar		1998-08
Bhitargaon Block	18.28	150.82
Allahabad		2001-08
Kaurihar Block	22.56	40.92
Total U.P. (Rural, 2001-2008)	10.67	12.17

Source: Based on Sankhyakiya Patrika of U.P. (upgov.up.nic.in/engspatrika)

Why we need to be concern about?

If we compare the urban growth of Uttar Pradesh with the rate of land use conversion from agricultural use to non agricultural we find that with the growing trend of urban growth more and more land are being acquired for non-farm activities and the number of land holdings are decreasing our cultivation is in a major chunk done on area that are termed as Marginal that is they are below 1.0 Hect. The table shows at length that how some of the major districts of Uttar Pradesh depend upon marginal land holdings for their food supply if we observe the table we can see that some of the districts like Sitapur and Hardoi has total land holdings to the number of 586,000 and 585,000 respectively and out of which about 77.5 and 78.0 per cent it is termed as marginal or below 1.0 hectare respectively. While only 15.0 and 13.5 per cent of land holdings can be termed as Small or land area ranging from 1.0 to 2.0 hectare only. (See Table 6)

District-wise Number of Total Land Holdings in Uttar Pradesh (2000-2001)				
District	Total (All Holding Group)	Marginal (Below 1.0 Hect.)	Small (1.0 to 2.0 Hect.)	(Thousand)
				Agricultural Labourers
Saharanpur	220	140	41	146
Muzaffarnagar	295	197	52	181
Bijnor	317	208	62	171
Moradabad	458	348	68	148
Rampur	200	136	40	95
Jyotiba Phule Nagar	179	121	34	47
Meerut	192	124	43	67
Ghaziabad	177	128	30	40
Bulandshahr	290	199	53	93
Aligarh	263	167	57	94
Hathras	194	106	28	53
Agra	253	161	52	68
Firozabad	177	117	36	45
Etah	407	299	74	84
Mainpuri	282	219	44	38
Budaun	515	384	83	105
Bareilly	448	343	68	124
Pilibhit	202	131	42	61
Shahjahanpur	387	279	66	104
Kheri	570	414	99	153
Sitapur	586	454	88	136
Hardoi	585	465	79	130
Unnao	441	349	63	83
Lucknow	242	196	33	58

Rae Bareli	415	335	53	114
Farrukhabad	230	176	38	54
Fatehpur	393	297	62	126
Pratapgarh	480	411	41	89
Kaushambi	201	163	24	97
Allahabad	533	432	62	157
Barabanki	422	350	50	116
Faizabad	306	258	32	81
Ambedkar Nagar	306	269	27	80
Sultanpur	579	509	50	129
Bahraich	453	349	70	132
Gonda	484	409	50	92
Siddharth Nagar	370	306	47	102
Basti	310	259	35	72
Mahrajganj	390	335	38	116
Gorakhpur	465	403	43	117
Kushinagar	421	373	34	158
Deoria	373	323	34	70
Azamgarh	563	486	52	107
Ballia	345	287	36	123
Jaunpur	655	587	49	87
Ghazipur	398	331	43	105
Mirzapur	267	199	43	106
Sonbhadra	167	106	29	86
Uttar Pradesh	21668	16659	3087	5957

Sources : Economics and Statistics Division, Govt. of Uttar Pradesh.

The resultant impact is the decrease in the production and average yield of total food grains in Uttar Pradesh if we observe just in Lucknow Division we find that in 2004-05 an area of 2420134 hectare the production was 4958114 metric tonnes only while in the next 2005-06 the area did decrease to 2314603 hectare and with it the production also decreased to 4721101 metric tones. The decadal growth rate of population in Lucknow for the period of 1981-91 & 1991-2001 we find that the population growth rate shows an increasing trend from 37.14 per cent to 33.25 per cent. If the condition remains the same in the near future with the dependency of our agriculture will the food production rate be able to supply food to the growing number of mouths that is increasing at the rate to be more precise per second. (See Table: 7)

District wise Area, Production and Average Yield of Total Foodgrains in Uttar Pradesh (2004-2005 and 2005-2006)						
(Area in Hect., Production M.T., Average Yield In Qtls./Hect.)						
District/Division/Region	2004-05			2005-06		
	Area	Production	Average Yield	Area	Production*	Average** Yield
Saharanpur Division	361817	982016	27.14	333445	913791	2740
Moradabad Division	1023410	2475373	24.19	924110	2233261	2417
Meerut Division	708406	2088703	29.48	7255710	2058732	2837

Agra Division	2020210	4873766	24.13	1899536	4782661	2518
Bareilly Division	1861584	4320082	23.21	1688274	4110568	2435
Lucknow Division	2420134	4958114	20.49	2314603	4721101	2040
Kanpur Division	1185361	2720898	22.95	1132592	2632331	2324
Jhansi Division	1128030	1612920	14.3	1125525	1451713	1290
Chitrakut Division	1191481	1269492	10.65	1057554	1018955	1034
Allahabad Division	1264085	2203565	17.43	1317385	2319386	1761
Faizabad Division	1215120	2698478	22.21	1202721	2811338	2337
Devipatan Division	1262756	2192100	17.4	1259085	2281400	1812
Basti Division	777573	12311763	15.8	756705	1478120	1953
Gorakhpur Division	1239816	2663827	21.5	1226859	2420074	1973
Azamgarh Division	996458	1430453	14.4	978850	1852446	1892
Varanasi Division	1154597	1741948	15.1	1104024	2121200	1921
Vindhyachal Division	544527	533308	9.8	611899	727055	1188
Western	6675709	16415775	24.59	-	-	-
Central	3675178	7611202	20.71	-	-	-
Bundelkhand	2319511	2882412	12.43	-	-	-
Eastern	7684967	13087417	17.03	-	-	-
Uttar Pradesh	20355365	39996806	19.65	19658877	39934132	2031

Note : * : Value of Production of 2005-06 in Tonne.

** : Value of Yield of 2005-06 in Kg/Ha.

Compiled from the statistics released by : Economics & Statistics Division, Govt of Uttar Pradesh and

The Fertiliser Association of India.

Conclusion

It is high time that we come forward with ideas for having an all round development of the economy the need of the hour is to have sound land use planning as population and human aspirations are increasing, land is becoming an increasingly scarce resource, calling for land use planning. Land use planning is important to mitigate the negative effects of land use and to enhance the efficient use of resources with minimal impact on future generations. It should be kept in mind that simply on the basis of availability of infrastructure or agricultural land we should not go for converting our fertile farm land into non farm land; it would be a serious mistake which would be irreversible. Therefore, it is most essential to identify the non-agricultural infertile land through satellite imageries and the data that are available and it should be a compulsion to utilize these non-agricultural lands for the development of our non farm activities. Million plus cities should not be allowed to further grow by putting ban on expansion of industries or any kind of activities which are not directly required for the cities. In this way urbanization would grow in un-urbanized areas and thus barren and waste lands

would be easily available for its use. Agricultural land should not be allowed at any cost to be used for non farm activities there should be strict check and control on the basis of clear cut formulated policies at all cost at the state and local level so that an all round sustainable development could be achieved and that too within short period of time.

CHANGING PATTERN OF URBAN SPRAWL IN HARAHUA BLOCK, VARANASI

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Changing Pattern of Urban Sprawl in Harahua Block, Varanasi

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Abstract

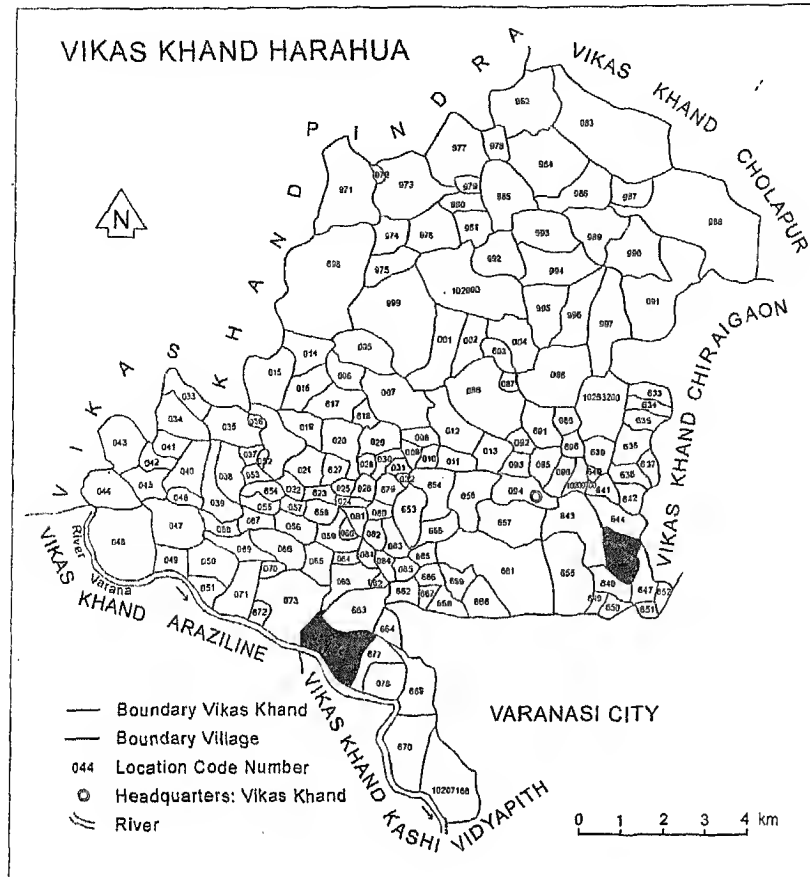
Rapid and random expansion of urban centers along their peripheries is a typical phenomenon of urban landscape in developing countries in general and in India in particular due to increasing population and economic growth in selected landscapes. The emergence of fringe zone with its complex problems of adjustments in between rural and urban ways of life has led to serious land use problems, such as loss of agricultural land, illegal urban sprawl, high land values, speculation in land and related problems. The study of these land use changes is crucial to understand land use dynamics over different spatial and temporal time scales for effective land management. Today, with rapid urbanization and shrinking of rural area, there is increasing pressure on land, water and environment, in the Varanasi city. There are many problems associated with fragmented conversion of agricultural land into urban use. Varanasi is expanding in all directions resulting in large-scale urban sprawl and changes in urban land use. The spatial pattern of such changes is clearly noticed in the urban fringes of Harahua Block.

The study area Harahua block is one of the blocks of Varanasi district. The city expansion reveals in some outcrops which is definitely an urban sprawl. The over pressure and crowdedness in the city has a hot demand for broad roads, this factor puts an emphasis on transfer of roads in the outside fringe, this might be creating an extra problem in this area. Urban encroachment has been seen in the other Nyay Panchayat which is direct connected with these urban fringes, such as Sabhaipur, Madhawa, Pisaur and Harahua. This changing landscape from rural to urban is governed by rural Panchayat that is not fitting for planed development of the zone. In this urban extension the agricultural land and its occupation has been also changing rapidly. This paper envisages this extension and finding the pressure that puts on the resources available. It is an attempt to seeking answers from the problems.

Introduction

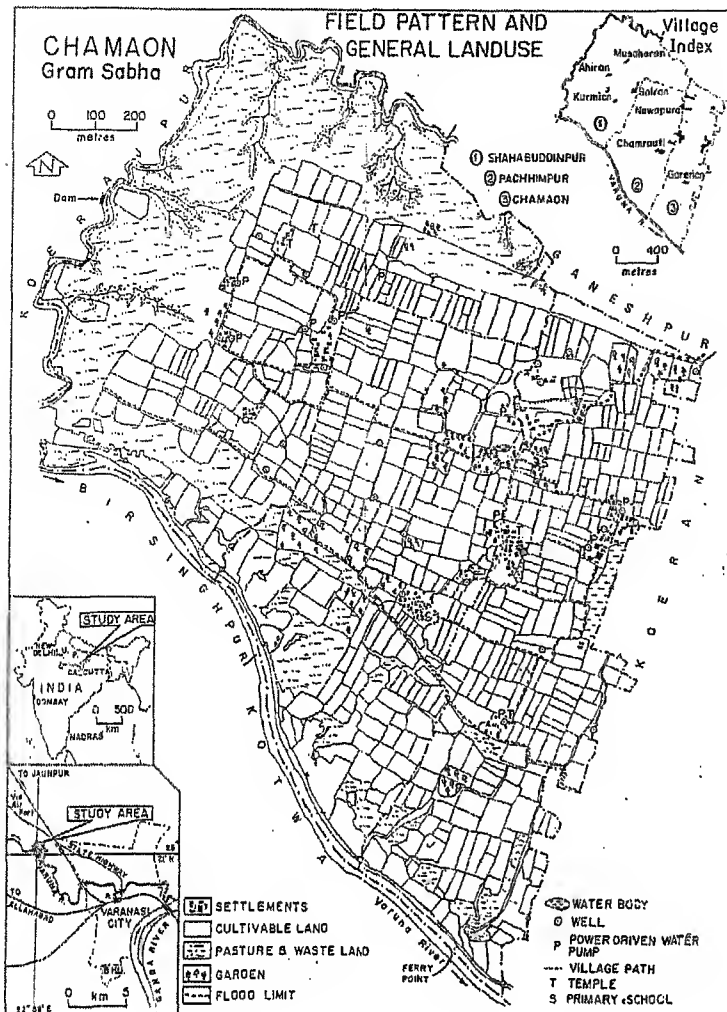
Harahua block in Varanasi district, lies in eastern Uttar Pradesh. Its major area is stretched towards the south of the Harahua block Headquarters. The block is spread over an area of 142.5 sq. km. This block is situated 6 km away from district headquarters in north-east direction. The State Highway (NH-56) passes through the block, linking the study area with city and district headquarters of Varanasi, Azamgarh and Jaunpur. Administratively, the block lies in two different Tahsils namely Pindra and Varanasi Sadar, which is further subdivided into 15 Nyay Panchayats, altogether consisting of 84 Gram Panchayats and 169 villages.

For the study of changes in urban sprawl, two Gram Sabhas namely lamahi and Chamaon has been taken as samples. Lamahi and Chamaon lies in Eastern and Western part of the urban sprawl respectively.



Chamaon: Location

Since 1956, CGS consists from east to west of three village settlements along the Varana river, which demarcates the southern boundary: Chamaon, Pachhimpur, and Shahabuddinpur, lying at $25^{\circ}21'$ north and $82^{\circ}58'$ east, located at a distance of about seven km from the main city of Varanasi at the NH-56.



Lamahi: Location

Lamahi, the village located on the busy Varanasi-Azamgarh Road and better known as the birthplace of noted Hindi novelist and story writer, Munshi premchand, an otherwise nondescript village with its green fields and cluster of houses. It has a prominent place on India's cultural map. Lamahi Gram Sabha consists of two village Lamahi and Banwaripur. It stretches from North to South $82^{\circ}59'$ E longitude and $25^{\circ}23'$ N latitude along SH-73 Varanasi to Azamgarh road at the distance of 5 km from the district headquarters.



Population

	1981				1991				2001			
Gram Sabha	Pop	Density	Sex Ratio	Literacy	Pop	Density	Sex Ratio	Literacy	Pop	Density	Sex Ratio	Literacy
Chamaon	1521	839	880	34.65	1844	1017	911	31.56	2421	1335	883	52.74
Lamahi	906	1092	697	35.87	1190	1434	836	44.36	1667	2009	863	62.09

Source: Census of India.

The increase in population has resulted in an increase in population density (persons per sq. km.) and today, it is approximately doubled of what it was in the decade 1981. A tremendous growth of 57 % in literacy rate has also occurred during the same period.

Chamaon Gram Sabha, Varanasi, 1994 to 2008 : Land Use Pattern

Area (Hectare)	1994		2004		2008	
	Area	% of a	Area	% of a	Area	% of a
Land Use	1	2	3	4	5	6
Total Area	181.3	100	181.3	100	181.3	100
ANAC	19.2	10.5	26.7	14.6	30.5	16.8
Culturable Waste	24.2	13.3	16.8	9.3	12.3	6.8
Fallow Land	19.7	10.8	12.1	6.7	7.3	4
Irrigated Land	117.9	77.9	155.9	84.7	169.9	86.4
NSA	118.2	65.2	125.7	69.3	131.2	72.4

Source: Singh, R. P. B. 2008 and field survey in June 2008.

- Chamaon is predominantly based on agricultural, population growth and socio-economic-technological development has been greatly influencing the pattern of land use in the study area.
- About three-fourth of the total area (181.3 ha) is net sown area. Those land earlier were not suitable for agriculture (i.e., cultivable barren, current fallow and other fallow), are used for orchard and gardens, and also for seasonal vegetable gardening. The guava orchards grown only since last twenty years, and are flourishing quite well along the Varana River. This area was earlier cultivable barren, but now transformed into commercial gardening.
- It appears through the table of different periods that cultivable barren lands are continuously being reclaimed from 13.3 % to 6.8 % and used for cultivation since 1981.
- Vegetables are produced round the year because of high demand from nearby Varanasi city. Among vegetables grown bringal, cauliflower, cucumber, spinach, potato and green bean are much sought. The vegetable *Parval* had not ever sown in the village. But in 2007, it was introduced in the village by some farmers which vindicate the impact of market in agriculture.
- Development of transport and communicational facilities, have made the market accessible to farmers. And at the same time increase in literacy rate has made farmers more aware about changes in market prices of produce.

Lamahi Gram Sabha, Varanasi, 1981 to 2009 : Land Use Pattern

Area (Hectare)	1981		1991		2001		2009	
	Area	% of a	Area	% of a	Area	% of a	Area	% of a
Land Use	1	2	3	4	5	6	5	6
Total Area	82.97	100.00	82.97	100.00	82.97	100.00	82.97	100.00
ANAC	6.88	8.29	7.92	9.55	10.56	12.73	13.78	16.61
Culturable Waste	4.23	5.10	3.80	4.58	2.56	3.09	2.44	2.94
Fallow Land	11.33	13.66	10.02	12.08	17.00	20.49	24.93	30.05
NSA	60.53	72.95	61.23	73.80	52.85	63.70	41.82	50.40
Irrigated Land	43.14	71.27	48.61	79.39	43.65	82.59	23.55	56.31

- The Lamahi Gram Sabha has a total area of 82.97 ha according to census data. The changing pattern reveals that there is tremendous change in the land use pattern of the area.
- The Net sown area is declined at higher rates because of close proximity of the city Varanasi, so this village has facing a pressure of population.
- The major portion of land is largely used for built-up area such as roads, buildings and for too many other non agricultural purposes.
- The census data and the field survey reveals this pattern as shown in the table.
- The outgrowing city area as urban sprawl are largely found here. Agricultural pattern has been changed in these years rapidly.
- This Gram Sabha is also a birth place of famous writer Premchand, so this place is very important for the people. People mostly visit the old house of the legend. This assign an extra weightage to this village due to which it has turned into a frequently visited tourist place and consequently, a direct connection to the city.
- Lamahi is included among a few clean villages (*Nirmal Gram*) in Uttar Pradesh recently. Every house in the village has latrine facility and no body go out side in the field for excretion.
- Due to haphazard and unplanned growth, a number of vacant lands has been produced amidst agricultural fields as the supply of water for irrigation is hampered due to irregular plotting. In some plots construction has not yet been made therefore left unused.

The State Government announced the following projects under the Premchand Smriti Yojna in 2005:

- * Renovate Premchand's ancestral house in Lamahi, and provide 2.5-acre land to the Centre for declaring it a national heritage: Budget: Rs 25 lakh
- * Renovate the Munshi Premchand Sarovar in Lamahi village: Budget: Rs 25 lakh

- * Illustrated publication of stories and stage adaptations of his writings: Budget: Rs 5 lakh
- * Canopy over Premchand's statue at Pandeypur crossing: Budget: Rs 5 lakh
- * A 5-km road connecting Premchand's house in Lamahi, passing through Aidhe Adampur from Varanasi-Sindhaura road: Budget: Rs 45 lakh
- * Smriti Dwar and six pillars at the outskirts of Lamahi village on Azamgrah-Lamahi road: Budget: Rs 10 lakh

Cultural Activities

A number of colourful cultural programmes, including folk music and dance, are also organised on the Ramleela Ground in the village, as performance of local artists reminded of the social and cultural transformation that are strongly portrayed in the characters of Prem Chand.

The occupational structure of the Peri-Urban villages is similar to that of subsistence economy, has undergone some changes during the last decades. Formerly, most of the villagers worked within the area in accordance with village tradition and their cast affiliation. Today, the villagers cannot rely only on their traditional occupations but have to find other ways of making living, using various kinds of strategies. There has never been a demand for qualified laborers within the area, so men with higher education have to search outside the area for employments that correspond to their qualifications. In most of the families who own some lands for farming, some of the members also seek work outside the area, and work in nearby industries, as trolley carriers, weavers or shop assistants due to small size of agricultural land. Village women, because of their responsibilities for the households and prevailing prejudices in mobility and education, are reduced to seek employment within the area. The opportunities for wage-earning work for women locally are mainly available in farm labouring. Some women work at home, producing small items for sale such as baskets, leaf-plates and artificial ornaments. If the family is not of high caste, the women in the family take care of animals also. In families that run a household industry or small business such as weaving or a shop, the women and their children in the families contribute with their work. A job outside the area is better paid than within the village area. Disparity in wages is such that in city areas it is Rs 100 per day, while in rural areas, a farm laborer get around Rs 70 per day.

Conclusion

The utilization of land depends upon physical factors like topography, soil and climate as well as upon human factor such as density of population, duration of occupation in the area, land tenure and technical level of the people. There is spatial and temporal difference in land utilization due to the continued interplay of physical and human factors. The culturable waste land and fallow land experienced a considerable loss of land area over the period 1981-2009, while most other land use categories increased in area. The largest gains in land area are recorded in the categories of net sown area in the Chamaon gram sabha whereas a decreasing trend is shown in the Lamahi gram sabha. These reflect a competition between the agricultural activity and the growing demand for land for commercial purposes.



EMERGENCE OF PERI-URBAN INTERFACE AND FUTURE RESEARCH CHALLENGES

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Emergence of Peri-Urban Interface and Future Research Challenges

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Abstract: Urbanisation as a process connotes plural meanings—demographic, social-cultural, politico-administrative, economic and geographical/spatial. The geographic literature however appears predominantly concerned with demographic and to some extent with spatial aspect. If noticed carefully, one can easily appreciate inter-linkage between these processes and also how they are responsible together for a variety of changes. Over the years, particularly after the attainment of Independence, a strong trend of *metropolisation* is apparently found in India with the increase in the number of the million-plus cities and also their growth. Strong trend of migration to the metropolises and improved commutation facilities have redefined the nature of urban and rural interpenetration as the implications of *metropolisation* are not contained within the city-demarcating boundary but well beyond that. It is highly realised that we will have to rethink informal understanding of exclusive *urban* and *rural* areas as a distinct zone of “chaos” and “hybridity” between them is rapidly growing across the world.

Therefore, it is quite naturally realised that the kind of change found around and out of a city boundary does not get sufficiently addressed by the conventional concepts like “fringe”. A new term “peri-urban interface”, a ‘zone where the urban and rural areas meet’, came into popular usage at least since the 1980s. It is also defined as the zone of flux where change is more ubiquitous. While endeavouring to seek an understanding of the spatial dynamics of cities, especially the mega-cities which experience higher degree of dynamism, it is pertinent to focus on the peri-urban interface and issues emerging thereof. Of course, the nature of peri-urban problems is not the same across the world.

In this backdrop, the basic concern of this paper is to present an appraisal of the peri-urban interface concept and to identify the future research challenges with special reference to developing countries, to be precise India. An attempt is also made to

illustrate how it could be a potential area of research by the practitioners of geography who are yet to attend it with required seriousness.

Keywords: urbanisation, peri-urban, urban fringe, hybridity, geography.

1. Introduction

Urban growth moves on at unprecedented rate. Even the countries in the developing world of the global South, including India, apparently march ahead with a soaring urban population (cf. Table 1, 2, 3 and 4) and even in percentage terms, sizeable chunk of their huge population is going to live in the urban areas before the mid-21st century. This trend is an indicator of strong urbanisation. However, urbanisation should not be treated only as the process which has to do with the demographic dimension that is the growth in urban population. Scholars unanimously recognise at least four forms of urbanisation, viz. urbanization as a socio-cultural process, urbanization as a political-administrative process, urbanization as an economic process, and urbanization as a geographical process (Ramachandran 1989: 75-95). We'll have to accept here that no matter how are we looking at this process, it has clear and direct implication for ecology and human habitat. Geographers, especially in India, have largely been interested in analysing the urban demographic dynamics, land-use, urban landscape(s) of poverty, infrastructure, environment, and the role of urban centres in the broader regional frame, particularly in the context of regional planning. To use the labels used by Ramachandran (1989: 90-94), we have fairly long list of studies dealing with the "macro-urbanization" and "metropolization"; but rather weaker and feeble tradition of "suburbanization" studies. With the spreading out of existing cities, many spatial consequences have emerged, specifically the new areas which exhibit neither the characteristics of urban nor the rural areas. Similarly, a variety of emergent features strongly suggest a situation of fluidity instead of any type of fixedity.

Table 1
Growth of urban population in India, 1901-2001

Year	Population (million)	%age (of Total Population)
1901	25.87	10.84
1911	25.96	10.42
1921	28.09	11.32
1931	33.47	12.12
1941	44.17	14.02
1951	62.44	17.29
1961	78.93	19.97
1971	109.11	19.91
1981	159.72	23.34
1991	217.18	25.72
2001	285.30	27.75

Source: Based on reports of the Census of India.

Table 2
Class-wise growth of towns in India, 1951-2001

Class of Towns	Census Years					
	1951	1961	1971	1981	1991	2001
I	76	102	148	218	300	393
II	91	129	173	270	345	401
III	327	437	558	743	947	1151
IV	608	719	827	1059	1167	1344
V	1124	711	623	758	740	888
VI	569	172	147	253	197	191
Total	2843	2365	2590	3378	3768	4368

Source: Based on Census of India 1951, 1961, 1971, 1981, 1991, 2001.

Table 3

Distribution of population by class of towns in India, 1951-2001 (%)

Class of Towns	1951	1961	1971	1981	1991	2001
I	44.6	51.4	57.0	60.4	65.2	68.5
II	10	11.2	11.0	11.6	11.0	9.6
III	15.7	16.9	17.0	14.4	13.2	12.4
IV	13.6	12.8	10.0	9.5	7.8	7
V	13	6.9	4.5	3.6	2.1	2.3
VI	3.1	0.8	0.5	0.5	0.3	0.2
Total	100	100	100	100	100	100

Source: Based on Census of India 1951, 1961, 1971, 1981, 1991, 2001.

Table 4

Growth of million-plus cities in India

Year	Number of Cities
1901	01
1911	02
1921	02
1931	02
1941	02
1951	05
1961	07
1971	09
1981	12
1991	23
2001	35

Source: Based on Census of India 1951, 1961, 1971, 1981, 1991, 2001.

The present exercise aims at discussing the emergence of peri-urban interface in the developing countries with special reference to India and diagnoses the future research challenges (in geography). The following discussion is organised into four sections: definition and classification of the peri-urban interface, nature of peri-urban interface in the developing global South (with special reference to India), the 21st century scenario and challenges, and the conclusions.

2. Definition and classification of peri-urban interface

2.1 Definition

Cities have a natural tendency to spread out and sprawl; nevertheless, this pattern is not uniform owing to one or a combination of the following demographic, socio-cultural, economic, infrastructural, and politico-economic factors (cf. McGregor, Simon and Thompson, 2006: 4):

- Size and structure
- Composition of the urban and migrant Population
(age and sex; family and household structure; ethnic, cultural and religious diversity; education and income levels; etc.)
- Extensive oscillating/circular migration
- Physical terrain and environmental barriers
- Transport networks (orientation, accessibility and affordability)
- Land (tenure system, values, and uses)
- Intense differences between administrative/political and *de facto* urban boundaries.

Peri-urbanisation can be understood as a specific phase of urban expansion (Oliveau 2005). This spreading out creates altogether a different zone/area characterised by hybridity, “chaos”, complexity and in a way it is the melting zone where the urban and rural characteristic features tend to mix with each other. They are “transitional spaces subject to also characterised by rapid and multiple transformations: physical, morphological, socio-demographic, cultural, economic and functional”. As the natural consequence, heterogeneity appears rather prominent over any homogeneity. However, the basic nature of such a zone varies depending upon the period of its existence. The most striking feature of this zone is its dynamism manifested in a variety of ways especially through the landscape change.

The peripheral areas of the cities have been termed as 'peri-urban interface' (PUI), "basically as an area with a mix of urban as well as rural development processes, situated on the periphery of cities". A few other terms like "metropolitan fringe"/"urban fringe", "rural urban fringe", "metropolitan peripheries", and "semiurbanised"/"urban transition zone" too have been used to denote the same. However, it was the Office of Rural and Institutional Development (ORID) which used the term 'peri-urban' in the late 1980's in the process of explaining schemes of development assistance aid to priority areas (cf. Rohilla 2005, 103). These zones are called differently: *Halfstedig* (semi-urban) in Dutch, *Urban-ländlichen Zone* (Urban-rural zones) in German, *Buitestedelik* (outer city/beyond the city) in Afrikaans, *Desakota* (city village) in East Asia and parts of South-East Asia, *Gragar?* (rurban): a Hindi used to denote settlements characterised by both rural and urban elements. It need to be underlined here that PUI is in realistic terms not *exactly* the same rather a little different from its 'synonymous' terms used interchangeably. The other terms connote a contiguous geographical area at the fringe of the urban limit whereas in the PUI case one may or may not find such a characteristic as several types of the PUI including even discontinuous one are known.

2.2 Types

Though the consequence of the same basic process, the PUIs acquire different characteristics in terms of their distance from the city concerned, nature of migration experienced and also the institutional context (IC). Iaquina and Drescher (2000) identify the following peri-urban types:

Village Periurban (VPU)

- Non-proximate to the city either geographically or in travel time
- Derives from sojourning, circulation and migration
- Embodies a *Network Induced IC* wherein change is effected through diffusion or induction while institutions remain traditional in orientation and stable.

Diffuse Periurban (DPU)

- Geographically urban fringe
- Derives from multiple-source point in-migration
- Embodies an *Amalgamated IC* where there is a high demand for negotiating novel institutional forms to address conflicting traditions and worldviews.

Chain Periurban (CPU)

- Geographically urban fringe
- Derives primarily from chain migration
- Embodies a *Reconstituted IC* wherein links to the donor area remain strong and traditions and institutions are transplanted with some modification from the donor area and take on a slightly defensive character.

In-place Periurban (IPU)

- Geographically close to the city; urban fringe
- Derives from in-place urbanization, natural increase and some migration
- Embodies a *Traditional IC* with long-term stable institutions evidencing strong defensive insulation.

Absorbed Periurban (APU)

- Geographically within the city, having been absorbed
- Derives from succession/displacement and traditionalism (ritualism)
- Embodies a *Residual IC* wherein the roots of social arrangements lie in the traditions of a previously resident culture group and are now maintained through ritualism

2.3 Factors of peri-urbanisation

The factors of the peri-urbanisation though may vary from one PUI to another. A few of them could be common; however, not affecting in similar way and same degree. They are the following:

- The role of transport and the sociological factors in urban sprawl (there is a growing tendency of dissociation between areas for living, work and leisure)

- The influence of single family housing [problems with multi-storey flat system, owning property (*kothi* or a “farm-house”), relatively cheaper, status-symbol]
- New rural population (desire to simultaneously live in both city and village: quite surroundings and life, comparatively cheaper living, healthier environment, aesthetic rural setting, etc.)
- Security and "Fenced & Gated Communities"

3. Nature of peri-urban interface in the developing global South

3.1. General nature of the peri-urban interface

No matter how we conceptualise and define “peri-urban interface”, the basic fact remains that it is a dependent process on urbanisation and it provides a direct linkage between what we term ‘urban’ and ‘rural’ environments and their respective activities. Perhaps it will not be incorrect to argue that the process of peri-urbanisation in its basic form is an urban settlement oriented process. That is the reason why the first most important factor affecting the formation of peri-urban interface is the size of the urban settlement and also its structure as mentioned above. Hence, it may be stated that there exists a direct, strong and positive correlation between size of urban settlement and pace of peri-urbanisation, i.e. larger is the size of an urban settlement greater/intense is the peri-urbanisation. That is the reason why lower order urban settlements which are either sluggish or stagnant, in India, do not show existence of any peri-urban interface; whereas, on contrary, the larger urban centres have vast area of peri-urban interface. Similarly, it may be noted that the city concerned also act as the driver of change(s) in its peri-urban zone. The peri-urban interfaces are highly dynamic because they move outward with the expansion of the city in the geographic space. That is to say the peri-urban inertia depends on the force generated within the city concerned. We can say that peri-urban interface always remains in the changing or transitory state—with the becoming of a peri-urban ‘urban’, the peri-urban in geographical sense is pushed further out. It also suggests that the periurban population experiences “continuous shifts in lives and livelihoods” as well.

3.2. The peri-urban interface in the developing global South

Now, the question is whether the nature of PUI is uniform across or does it vary? Though in general terms, every PUI is induced by the urban expansion, as noted above; the nature of evolution is bound to be different. That is how the experience of the PUI in the global South is different from other parts of the world in terms of two basic features. Firstly, migration from the rural and lower order urban settlements is playing important role in intensifying the urban population pressure and also pushing out of the urban limits; and on the other hand it is also occupied by the migrant workers. Secondly, the consequences on the land and the 'original' inhabitants are deeper and dark. The stress on land and environment as a whole is quite a grave issue in the PUIs in this part of the world due to prevalent poverty situation and also a negligent attitude to administrators. The environmental stress in one hand is on account of local level mis-/mal-treatment and on top of that the international and national level policies and consequent processes too often produce negative effects.

The peri-urbanisation process leads to transformation of the rural areas through different phases. In the case of the developing countries, the typical rural stage, unaffected by the presence of a city in the region, in due course of time develops some basic functional relationship as the supplier of certain products for the city market chiefly in the form of vegetables, milk, flowers and fruits. In the next phase, villagers start availing the employment opportunities available in the city which marks a new form of village-city interaction. It results into a new relationship with profound effect on rural areas through the initial change in occupational pattern which acts as a catalyst to a host of other economic and socio-cultural changes. With the growing interaction between city and villages, urban land-use starts penetrating rural landscape generally through the real-estate agents developing residential "colonies". The state-owned urban development authorities too can play similar role as has been experienced since the recent past. With the intensification of interaction, urban uses take over the past non-urban agricultural uses and the villages become the part of the city concerned. However, all the signs of rural past do not vanish entirely. Their retention does not allow full assimilation of the rural settlements concerned in the city and they maintain their identity as the "urban

villages" (cf. Ramachandran 1989, 310-316). Such transformations, with many desirable effects like creation of employment opportunities in the PUIs and also the future job potential, necessarily create a variety of problems too for the PUIs. Some problems like land-use problems are direct and others might be indirect. As far as the employment opportunities are concerned, the larger issue here is most of such opportunities are availed by migrant labour and that is how 'original' inhabitants, having already lost the traditional livelihood(s), become more vulnerable. It becomes crucial to underline that an average PUI dweller's vulnerability is an issue more pertinent in the global South than elsewhere.

Scholars believe that if peri-urbanisation is the direct consequence of the urban expansion and growing interaction between the city and villages around, the expansion should be planned (cf. *ibid.*, 319-320). The question is can we do that? If yes, how to do that? Which body will regulate. The existing system is insufficient to address and deliver the desirable results. We will have to shed our vision which looks at the rural and urban settlements as binary opposition and accordingly correct the current practises. It appears difficult and much easier would be to create a separate regulatory body for the PUIs.

Looking critically at this problem, one may doubt the outcomes. Often the ideas like planning are ultimately treated as a *sarkari* kind of venture in spite of all good intentions of policy-makers. Moreover, the sufficiency and efficiency of skill and expertise of the general administrators to handle such problems and deliver the desirable is also doubtful, as per the general experience. Hence, planning must be supplemented strongly with monitoring to avoid negative consequences. Some scholars have attached priority weightage to the use of modern information technology (MIT), e.g. the Geographical Information System (GIS). They argue that the 'traditional database and land use measures give a vague picture of the land use dynamics' and the 'current urban based definitions are poorly suited to delineate these areas and low density, exurban land use is difficult to measure using existing land cover databases. Relying solely on urban based land cover classification will likely underestimate large areas of low density human settlement beyond the urban fringe' (Theobald, 2000). However, even those not averse to

such MITs will agree that these tools should be over-expected to give magic wand like results. Therefore, ground level monitoring should be taken as the base supplemented by GIS like tools.

4. 21st century scenario and challenges

4.1 Scenario

It is not that the cities have started expanding only during the last few years. Naturally one finds sporadic studies addressing the issues of rural urban fringe. The published literature reflects gross negligence of peri-urban studies even in the developing countries of the global South where a typical nature of peri-urbanisation has given rise to vast peri-urban zones. Most of the studies are focused on the distribution of towns/cities as settlements and urban population growth and distribution. For some time during the late fifties and sixties, the umland study was a fashion which soon faded out without getting re-vigourated with the emerging dimensions of interaction between a city and its region. We chose to replicate the same model of Prof. R.L. Singh (1955) without critically assessing the bases considered by him and examining in different contexts¹. It was enough to end a strong beginning due to the lack of life-supporting oxygen in the form of fresh and innovative ideas. Geographers have an edge over the fellow workers in studying the spatial interactions and their consequences, But, alas! By treading on the path of others, we forgot our destination and lost the privileged bastion. It needs no elaboration that the PUI, basically the outcome of interaction between the city and its hinterland, the by and large corresponds to the primary umland.

A random survey of the *Economic and Political Weekly*(EPW)², doctoral works at Banaras Hindu University³ and two successive reports of (Progress in Indian Geography⁴) 2004 and 2008 too lend clear evidence to the fact that little attention has paid towards such zones as observed by McGregor, Simon and Thompson (2006: 313-325). The following sub-section enlists a few issues to be taken up for the future studies of the PUIs.

4.2 What can be studied?

1. Demographic changes
2. Land use (and their changes)
3. Natural resource quality and use
4. Impacts on common property resources (CPRs), e.g. village grazing land and water bodies.
5. Biodiversity (flora) loss due to expanding peri-urban interface
6. Production system (and their changes)
7. Economic changes (sectoral: agriculture→manufacturing→services-trade & transport)
8. Livelihood pattern: changes, diversity, insecurity, risk and coping up issues
9. Social consequences (contrast between original inhabitants in the traditional caste based occupations and new settlers with higher paid urban and modern occupations, relative deprivation, envy, conflict; contestation of the (original) social entity; household level consequences in the form of property sharing/division, intra-household conflict, etc.)
10. Gender issues
11. Peri-urbanisation vis-à-vis poor and poverty
12. Ecology, pollution and environmental stress ("environmentally choked" areas)
13. Civic amenities and infrastructure
14. Peri-urban management and planning
15. Peri-urban administration
16. Prioritisation of peri-urban issues
17. Peri-urban governance issues
18. Public policies for peri-urban areas
19. Impact of external (international and national) forces on the PUIs
20. Sustainability issues in peri-urban interface

Conclusions

Urbanisation in its complete sense leads to variety of consequences and hence manifested in more than one way. Urban expansion is one among them. Peri-urbanisation is one of the specific phases of such urban expansion resulting into the emergence of the PUI. The PUI is different from other such zones found in the urban fringe or periphery precisely for the fact that it is not strictly a zone/area (immediately) at the city-edge and continuous. Unprecedented “urban explosion” in the developing world of the global South has rendered the PUIs there a typical character, dynamics and problems posing research challenges. Still, the PUIs impacts on people, places and environments are not the same, which gives a fertile ground for geographic harvests. Unfortunately, Geography like discipline having edge over such interdisciplinary issues has not been able to respond sufficiently. With the postmodern turn offering far more alternative approaches and methodologies, there is greater possibility of undertaking PUI studies in emerging directions—they may or may not mappable in the geographic sense. At the end, it is also relevant to think on whether we can develop a new specialisation as “Peri-Urban Interface Studies” for a holistic treatment and addressing the PUI issues in a focused manner?

Notes

1. Perhaps it is only Ramachandran (1989, 272) who has questioned the criteria used by R.L. Singh and observed that “...of the six criteria used, four do not constitute central place functions”.
2. EPW is one of the highly circulated and active research magazines considered the mirror of contemporary academic engagements especially in social sciences and humanities.
3. BHU’s department of geography is perhaps the pioneer centre for urban studies.
4. Progress in Indian Geography is a country report brought out on the behalf of Indian National Science Academy (INSA, New Delhi) and presented at the International Geographical Congress held after every four year.

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SUSTAINABLE DEVELOPMENT AND URBAN SPRAWL IN KANPUR URBAN

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Sustainable Development and Urban Sprawl in Kanpur Urban

Paper submitted for the ar on Problems and Management of Rural Urban Fringe

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Abstract: Urban sprawl in the rural areas have resulted in change of land use mostly from agricultural to non agricultural. Forests also tend to depleat. There is a mixed impact of such a sprawl on the inhabitants of rural urban fringe. The present paper will analyse the impact of the urban sprawl on some villages in Kanpur city. These villages were part of Kanpur Dehat previously and now they have come within the purview of Kanpur City. The study will look upon the position of nine fold classification of land .Trend analysis of the cropping pattern is made to analyze food security. The study also throws light upon the increased amenities availed in these areas

Introduction:

The process of urbanization operating in the fringe of Kanpur Urban has given rise to typical land use associations where the contemporary and dynamic land use pattern is developing side by side in the contemporary context, the various land uses, Old villages, new residential extensions, commerce, industry, city service and farming are not nearly sorted out into homogenous areas but are intermingled in a random fashion which gives a distinctive quality to the land use pattern of rural urban fringe. The haphazard development of slums, unauthorized colonies, piecemeal commercial development, intermix of conforming and non-conforming uses of land coupled with inadequate services and facilities have become a common features in the fringe. The dynamic change from rural to urban land use is so fast that the resultant need and complex uses coupled with shortage of land have led to speculation and increase in land values. The ever-growing difference between the demand and supplies of house sites and units coupled with B.D.A's restriction on other forms of supply and very high cost of land in the city have increased the pressure of fringe area tremendously which has given rise to proliferation of unauthorized development of land uses-residential and industries etc. The fringe areas are generally within the jurisdiction of panchayat which has neither the financial resources nor the technical expertise to plan and manage the rapidly developing fringe.

The present paper deals with the Land use change ,food security ,residential scenario in the rural urban fringe of Kanpur Nagar .

II. Objectives

The major objectives of the study is

- (i) To review the existing land use patterns and preparation of data base.

- (ii) Identify areas under different types of crops and analysis of food security in the district.
- (iii) Examine the Housing rates in the fringe.
- (iv) Analysis of basic amenities provided in the district's fringe areas

111. Methodology

- (1) Selection of indicators representing land use as identified by the revenue department.
- (2) The secondary data pertaining to Kanpur Urban of the year 1990-91, 2000-2001, 2003-04, 2008 have been analysed from Economics and Statistics department Kanpur as well as Town and country planning department, Kanpur
- (3) Trends of different land use have been analysed. With the help of correlation, regression methods.

Kanpur city has grown from an area of 8236 hectare in 1946 to 29670 hectare in 1962 which includes the cantonment area too. In 1962, it was spread from Beri Akbarpur in west to Ruma in east and from Ganga River in north to Pandu River in south. As per Master plan 1991, in 1962 out of total 29,670 hectare, 8863.5 hectare (29.9%) was developed land and rest 18235.7 hectare (61.5%) was agricultural land, 2570.8 hectare (8.6%) was open land. In 1997-98, total metropolitan region area has increased to 89131.15 hectare out of which 4,743.9 hectare (5.31 %) was non-defined (prohibited area) and rest 29,683 hectare and 54,704 hectare (61.39%) was urban and rural area respectively.

Over a period of time, Kanpur has developed linearly from east to west along Ganga River and G.T road. The Central Business District (inner city) is located in the north central part. It is heavily built up and characterized by mixed commercial and transport related activities. The public, semi-public, residential and other land use activities have been mostly concentrated in the west. Due to physical constraints of river in the north and cantonment in the east, industrial concentration followed western/ southern expansion.

IV. Urban sprawl of Kanpur City

Urban sprawl of Kanpur can be defined by the increase in number of blocks in Kanpur city. Total number of blocks in Kanpur city has increased since 1995-96. The name of the villages included in Kanpur city has been given in the following Table 1. Within the period of ten years urban sprawl has undertaken ten blocks in the same district. There were 278 villages in the Census of 1991 in Kanpur district which have increased to 1003 in number. The new blocks added to this city have been shown in Map 1 and Map 2

Table 1: Blocks in Kanpur City

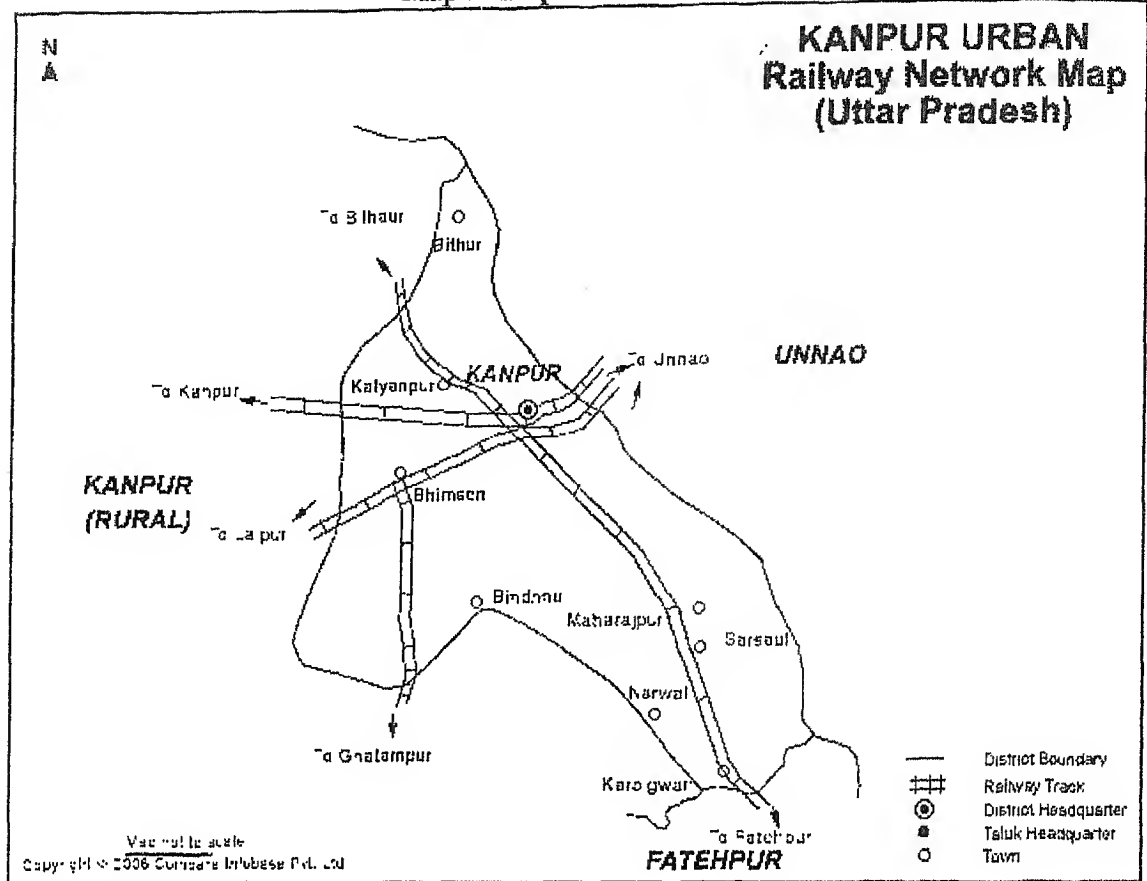
Year	1994	2005
	Kalyanpur	Kalyanpur
	Bidhnu	Bidhnu
	Sarsaul	Sarsaul
		Bilhaur
		Kakwan
		Shivajpur
		Chaubepur
		Bhitargaon
		Ghatampur
Population	3,81,154	41,67,999
Villages	278	1003

Map1: Blocks added to Kanpur Urban district



Source: Economics and Statistics Division Kanpur

Map2:Kanpur Urban



In Map 2 the present Kanpur district is shown along with the new blocks added to it .

V.Land use in Kanpur

The hypothesis that land use in the rural urban fringe is diverted from forests and agricultural lands to Land Under non Agricultural Uses. This poses a question on sustainable development as well as food security. To test this hypothesis land use data of Kanpur district has been analysed. The range of data is of ten years. i.e Land use of 1992-93 has been compared to the Land Use of 2003-04.

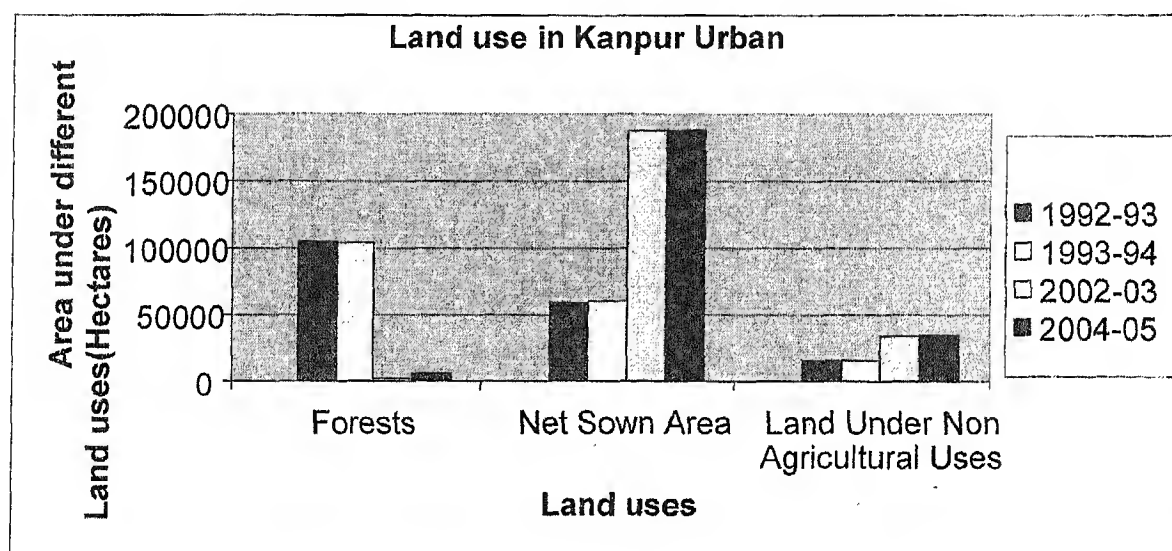
The findings of the analysis has been that the forests have reduced in the year 2003-04 from 10749 hectares in 1992-93 to 5627 hectares in 2003-04. Net area sown has increased 59,105 hectares to 188046 hectares. But over all land under non agricultural has increase is depicted in the Figure 1. It is depicted in the figure that there has been vast difference between the forest area of 1993 and the forest area of 2004-05. In spite of inclusion of seven more villages it has been the situation that forests have depleted in Kanpur Urban. The data in Table 2 suggests that reduction in forests have resulted in increase in Agricultural land that is net sown area. Which has increased from 59,105 hectares in the year 1992-93 to 188046 hectares in 2003-04.

Table2:Land use in Kanpur Urban (hectare)

Year	Forests	Net Sown Area	Land Under Non Agricultural Uses
1992-93	104,749	59,105	14814
1993-94	104,328	59,784	15,532
2002-03	1,573	187,305	33,952
2004-05	5,627	188,046	34,759

Source:Economics and Statistics Division Kanpur

Figure1:Land use in Kanpur Urban



Source:Economics and Statistics Division Kanpur

Table 3 reveals that per capita net sown area has decreased from 0.16 hectare to .04 hectare in the year 2004-05 This depicts that there is very high population growth in the city.

Table3:Per capita net sown area in Kanpur Urban

Year	Per capita net sown area
1992-93	0.16
1993-94	0.16
2002-03	0.04
2004-05	0.05

Source:Economics and Statistics Division Kanpur

Table 3.1:Correlation matrix of landuse in Kanpur Urban

	Reportin g area	fore st	Cultivable waste	Curr ent Fallo w	Othe r fallo w	Barr en land	Land under non agricultural	Past ure land	Misc ellane ous	Ne t so wn are a
Reporting area	1									
forest	-0.259	1								
Cultivable waste	-0.135	0.839	1							
Current Fallow	0.8081	0.114	-0.0946	1						
Othe fallow	0.0947	0.336	0.4731	0.1655	1					
Barren land	-0.052	0.489	0.5442	0.3928	0.1184	1				
Land under non agricultural	0.7815	0.164	-0.0192	0.3569	0.0665	0.2458	1			
Pastureland	0.0996	0.098	0.298	0.2366	0.9226	0.2286	0.1169	1		
Miscellaneous	0.11	0.024	0.2795	0.455	0.5464	0.5275	0.5291	0.61	1	
Net sown area	0.9812	0.406	-0.3011	0.7702	0.0304	0.1974	0.7477	0.06	0.1	1

Source: Calculated from Economics and Statistics Division Kanpur

The correlation matrix of the land use in Kanpur Urban shows that land under non agricultural uses is negatively correlated with forest area which depicts that Urban sprawl has resulted in increased residential land use ,roads etc. on account of forest area. But a positive aspect is that Barren land has reduced which shows that some possible sustainable development is taking place. Correlation coefficient of barrenland and land under non agricultural uses is -0.2458. This shows that Barren land has reduced but to a very less area could be diverted from barren land to land for other use. This is depicted by the following regression . The data of 2001-2007 was analysed to arrive at these results .

Regression Estimates on Area Under Land under Non agricultural Uses with respect to Barren Land

Barren land	Coef.	Std. Err. t	P>t	[95% Conf.	Interval]
Land under non agricultural uses	-0.80321	.1971312 -4.07	0.015		
_cons	47457.47	6793.44 6.99	0.002		

Number of obs	6
F(1, 4)	16.6
Prob > F	0.0152
R-squared	0.8058
Adj R-squared	0.7573
Root MSE	1343.6

In the regression analysis it is seen that Barren land has been utilized to a greater degree by land under non agricultural uses. The T value shows significance and the estimated coefficient with respect to barren land is significant

V.Amenities available in Kanpur Urban:

The urban sprawl of Kanpur City has not resulted in increase in all the amenities in the fringe areas. Table 4 depicts that number of police stations in 1994 in Kanpur city was 61 which have reduced to 33 in 2006-07. Primary schools have increased from 1614 to 1757 in 2006-07. Hospitals (Allopathic) have reduced in this district from 186 to 96. This can be due to two reasons . Either non operational hospitals have been closed or some Homeo and Ayurvedic hospitals have increased. Family welfare centers have increased from 22 to 30 in the year 2006-2007 .Rural banks have increased marginally from 4 to 5 in number in Kanpur city. Post offices have reduced in the district from 236 in 1994 to

122 in the year 2006-07. Public call offices have increased from 3810 to 4548 in the year 2006-07

Table 4: Amenities available during ten years

Basic amenities	1994	2006-07
Police station	61	33
Primary school	1614	1757
Hospitals, primary health centers	186	96
Family Welfare	22	30
Rural Banks	4	5
Post offices	236	122
PCOs	3810	4548

VI. Food security in Kanpur Urban: The estimates of food security has been worked out for Kanpur city taking into consideration the production of major food crops like rice, wheat and pulses. Table 5.1 shows that agricultural production has increased in absolute terms in case of all the food crops like rice, wheat and pulses from 1991 to 2005 but the increase had fluctuating trends. Though rice production increased from 19732 quintals in 1991 to 74896 quintals in 2003. The output decreased to 71748 quintals in 2004. It again increased to 77188 quintals in 2005. If the production of Wheat is considered it was maximum in 2003 with 325992 quintals. It again decreased to 283426 quintals. All the cereals taken together depict maximum production in 2003-04. It was 494194 quintals in 2003-04. It has come down to 457224 quintals in 2005-06.

The productivity of the land has increased as is depicted in Table 5.2 for wheat and all the cereals taken together. The productivity of rice has decreased from 19.1 quintals per hectare to 16.63 quintals per hectare in 2007-08. Productivity of pulses and cereals has increased from 21.3 quintals per hectare. Table

Table 5.1: Agricultural Production and Per capita Agricultural Production Kanpur Urban (in quintals)

Year	1991	1992	1993	2003	2004	2005
Rice	19732	28030	25717	74896	71748	77188
Wheat	107004	85394	85259	32599	26551	28342
				2	3	6
(Total cereals and Pulses)	151,951	138819	131745	494194	421651	457224

Table5.2: Agricultural productivity in Kanpur Urban(quintals /Hectare)

	1996-97	2007-08
Rice	19.1	16.63
Wheat	26.34	30
Total pulses and cereals	21.3	30.94

VII.Per capita Agricultural Production (in quintals):Absolute increase in production has not resulted in per capita increase in production which has in fact decreased in 2005 in case of cereals and pulses In case of rice ,it has remained constant at .02 quintals In case of wheat it has decreased from 0.09 quintals in 1991 to 0.07 quintals in 2005.Over and above this rates of all the food crops have increased within 2003-2008 (Table 5.4) due to rise in demand as well as rise in cost of production as well as inflation rate prevailing in the economy. These situations in agricultural production reveal that though food security is not in much crisis due to urban sprawl at present yet there can be shortage in the future due to rising prices.

Table5.3 Per capita Agricultural Production (in quintals)

Per capita Agricultural Production (in quintals)						
Year/Crops	1991	1992	1993	2003	2004	2005
Rice	0.02	0.02	0.02	0.02	0.02	0.02
Wheat	0.09	0.07	0.07	0.08	0.06	0.07
(Total cereals and Pulses)	0.13	0.12	0.11	0.12	0.10	0.11

Table 5.4 Trends in the Rate of Food crops

year	wheat per kg.	Gram per kg.	rice per kg.	arhar per kg.	moong per kg.	urd per kg.	onions per kg.	Potatoes per kg.
1999	6.81	16.92	11	31.58	27.92	27.67	8.75	4.21
2003-04	7	19.92	10.74	26.18	29.79	24.32	7.76	4.34
2008	10.79	34.5	13.5	39.92	46.5	47.33	9.17	9

VII:Land Under Non Agricultural uses diverted to residential Areas

Another problem rising in the fringe area is the increase in the cost of houses or residential lands. In Kanpur Urban KDA and UP Housing Board develop land and allot plots for construction of HIG<MIG and LIG houses. As per the latest data available UPHDB has 1126.32 hectare area in possession and out of which only 688.54 hectares have been developed. About 5 to 10 percent residents carry out tiny activities in the

unorganized sector like grocery shops, barber shops etc. at their residential areas. People prefer flats or apartments over here.

Kanpur has a housing stock of about 5 lakh dwelling units as shown in the Table No. 6. Out of total houses, about 85 percent of the houses are in urban area and remaining 15 percentages falls in the rural areas of Kanpur (Kanpur Vision Document 2004). The pucca houses are 75 percent whereas remaining 25 percent are either semi pucca or kutcha. As far as type of material is concerned, 82 percent are houses made of RBC/RCC whereas 18 percent are made of grass, leaves, mud etc.

Table 6.1 Type of Houses

Distribution of census houses by predominate wall material	No.	Percentage
RBC / RCC & Burn Brick Houses	415,370	82.01
Houses of grass, leaves, mud, unburnt bricks, etc	91,105	17.99
Total	506,475	100

Source: Kanpur Vision Document 2004

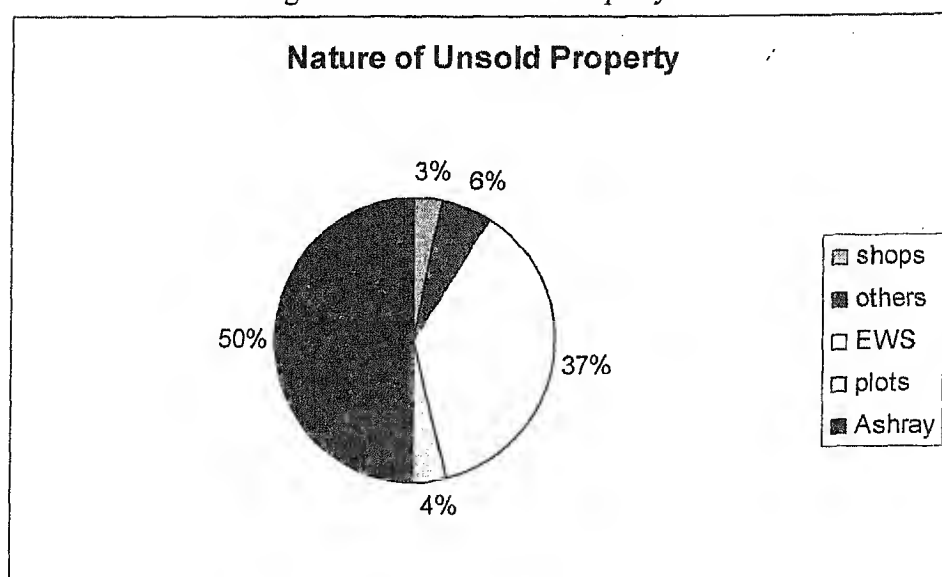
Table 6.2: House not allotted in various schemes in Kanpur city

S No.	Yojana	Year of starting the scheme (under section 32)	Acquired land (in acre)	Developed Houses	Allotted Houses	Acquired Houses	% of Acquired Houses
1	Yojana No. 1	20.9.1980	519.74	7617	7195	5498	71.2
2	Yojana No. 2 Phase 1 & 2	20.9.1980	818.34	11838	10279	8341	70.4
3	Yojana No. 3	28.8.1982	470.30	7255	6936	4535	62.5
	Total		1808.38	26690	24410	18374	68.8

Source: Data collected from U.P. Housing Board 2006

Upto March 2006, U.P. Housing board has developed 26,690 houses. The vacant houses are mostly in Yojna no.2 which are lying vacant mainly due to their location at the remote places and poor connectivity with the main city. The break up of unsold property are meant for EWS/LIG category and the major reason due to which houses remain unsold are remote location, lack of infrastructure and increase in the cost of houses due to which they become unaffordable for the poor. Fig 2 explains that Most of the houses are vacant which have been constructed under Ashray schemes and 37% houses which have not been sold belong to Economically weaker sections. The unsold commercial land properties are as less as 3 percent.

Fig2: Nature of Unsold Property



Source: Data collected from KDA 2006, Final Report on Kanpur City Development Plan

CONCLUSION:

The impact of the Urban sprawl on the Rural Urban Fringe presents the following observations and findings-

- 1) In spite of inclusion of seven more villages it has been the situation that forests have depleted in Kanpur Urban. Agricultural land has simultaneously increased.
- 2) Per capita net sown area has decreased from 0.16 hectare to .04 hectare in the year 2004-05.
- 3) Barren land has reduced on account of increase in land under non agricultural uses which shows that some possible sustainable development is taking place
- 4) Agricultural production reveal that though food security is not in much crisis due to urban sprawl at present yet there can be shortage in the future due to rising prices.
- 5) Unsold property are meant for EWS/LIG category and the major reason due to which houses remain unsold are remote location, lack of infrastructure and increase in the cost of houses due to which they become unaffordable for the poor.

To conclude it can be said that in spite of its Industrial characteristics Kanpur has not shown drastic problems in its fringe areas like in Gautam Buddha nagar or Lucknow. yet

an estimated 75,000, hectares of land are being used each year which by and large mainly come from agriculture. In the fringe, there are tendencies for spot developments. Such spot growth is wasteful and is often of a sub-standard nature. The scattering of small settlements necessitates the residents to commute for a longer distance besides stretching of public utility services. Obviously such a state of affairs is neither in the interest of public authorities nor in the interest of individual. It is, therefore, suggested that the spot development should be discouraged and compact development encouraged which is one of the major issues which needs to be considered. Decisions made today will either ensure future generations a choice of how they use the land or effectively limit their actions. Because many land use activities, specially in urban areas, result in irreversible changes, it is essential that the needs of future generations is considered. The dilemma in the regulations lies in balancing present versus future needs. Preservation of prime agricultural lands on the periphery of expanding cities and towns are necessary for maintaining open space and environmental quality. Land use control and regulation are important tools and instruments for planning of the cities and towns and to regulate growth and associated sprawl. Various development and legislative measures are to be adopted.

Annexure 1: Agricultural Production in Kanpur Nagar

क्र सं.	फसल का नाम	2003-04	2004-05	2005-06
1	2	3	4	5
	<u>धान्य</u>			
1-	चावल			
(अ)	खरीफ	74896	71748	77188
(ब)	जायद	0	0	0
	कुल चावल	74896	71748	77188
2-	गेहूं	325992	265513	283426
3-	जौ	13934	8423	14692
4-	ज्वार	15199	14115	16349
5-	बाजरा	991	1290	1390
6-	मक्का			
(अ)	खरीफ	25902	29027	20558
(ब)	रबी	0	0	52
(स)	जायद	71	48	189
	कुल मक्का	25973	29075	20799

7-	सांवां			
(अ)	खरीफ	0	0	0
(ब)	जायद	0	0	0
	कुल सांवां	0	0	0
8-	कोदो	0	0	0
	कुल धान्य	456985	390164	413844
	दालें			
9-	उर्द			
(अ)	खरीफ	5143	2129	4006
(ब)	जायद	291	212	188
	कुल उर्द	5434	2341	4194
10-	मूंग			
(अ)	खरीफ	53	79	77
(ब)	जायद	356	288	364
	कुल मूंग	409	367	441
11-	मसूर	717	829	1451
12-	चना	14983	15780	21355
13-	मटर	3519	3359	3322
14-	अरहर	12147	8811	12617
	कुल दालें	37209	31487	43380
	कुल खाद्यान्न (दालें+ धान्य)	494194	421651	457224

क्र सं.	फसल का नाम	2003-04	2004-05	2005-06
1	2	3	4	5
	<u>तिलहन</u>			
15-	लाही / सरसो	10831	13588	16400
16-	अल्सी	61	73	73
17-	तिल (शुद्ध)	277	355	421
18-	मूंगफली	104	124	228
19-	सूरजमुखी	2850	3316	2536
20-	सोयाबीन	10	3	9
	कुल तिलहन	14133	17459	19667
	<u>अन्य फसलें</u>			
21-	गन्ना	173413	210973	126457
22-	आलू	154659	220530	206004
23-	तम्बाकू	332	824	54
24-	कपास	0	0	0
25-	सनई	15	11	23
26-	हल्दी	5	0	7

वर्ष / विकासखण्ड	कुल प्रतिवेदित क्षेत्रफल	वन	कृषि योग्य बंजर भूमि	वर्तमान परती	अन्य परती	ऊसर एवं कृषि के अयोग्य भूमि	कृषि के अतिरिक्त अन्य उपयोग की भूमि	चारागाह	उद्यानों वृक्षों एवं झाड़ियों का क्षेत्रफल
1	2	3	4	5	6	7	8	9	10
2003-04	299435	1573	10054	27385	8985	20987	34864	3601	4681
2004-05	299435	5627	10165	28732	8147	17890	34759	2892	3177
2005-06	299435	5656	9508	30747	7353	17524	36267	3688	3025
<u>विकासखण्डवार</u>									

2005-06									
1. कल्याणपुर	20904	334	744	1712	838	1418	2486	741	267
2. विधनू	27470	120	533	2088	772	1626	3006	889	460
3. सरसौल	32326	979	413	1486	479	1730	6815	745	455
4. बिल्हौर	28436	1057	1102	3618	879	1996	4263	88	232
5. ककवन	12372	783	1147	920	167	888	1129	22	251
6. शिवराजपुर	22057	977	1837	2813	573	1713	2345	116	67
7. चौबेपुर	19440	736	1102	1942	682	939	2286	43	138
8. पतारा	25830	17	303	2739	501	569	3062	62	268
9. भीतरगांव	33192	22	456	4440	736	612	3992	44	373
10. घाटमपुर	52536	279	948	7813	921	803	6048	97	139
योग ग्रामीण	274563	5304	8585	29571	6548	12294	35432	2847	2650
योग वनक्षेत्र	0	0	0	0	0	0	0	0	0
योग नगरीय	24872	352	923	1176	805	5230	835	841	375
योग जनपद	299435	5656	9508	30747	7353	17524	36267	3688	3025



तालिका 17 क्रमशः

वर्ष/ विकासखण्ड	शुद्ध बोया गया क्षेत्रफल	एक बार से अधिक बोया गया क्षेत्रफल	सकल बोया गया क्षेत्रफल				गन्ने के लिये तैयार की गई भूमि	शुद्ध सिंचित क्षेत्रफल	सकल सिंचित क्षेत्रफल
			कुल	रबी	खरीफ	जायद			
1	11	12	13	14	15	16	17	18	19
2003-04	187305	70385	257690	146146	106253	5219	72	125598	170028
2004-05	188046	82746	270792	158629	107838	4253	72	134167	181095
2005-06	185667	82605	268272	154035	109231	4973	33	130333	178674

विकासखण्डवार										
2005-06										
1. कल्याणपुर	12364	5233	17597	10007	7259	331	0	10974	15573	
2. विधनू	17976	7389	25365	13152	12086	127	0	14827	21488	
3. सरसौल	19224	4149	23373	14378	8832	163	0	17021	21590	
4. बिल्हौर	15201	12896	28097	15471	10041	2585	0	12641	16828	
5. ककवन	7065	6421	13486	6545	6504	437	0	6598	10290	
6. शिवराजपुर	11616	12206	23822	11521	11398	903	0	10840	19378	
7. चौबेपुर	11572	7249	18821	10316	8339	166	0	9274	14480	
8. पतारा	18309	7037	25346	15545	9744	43	14	12450	15195	
9. भीतरगांव	22517	8009	30526	15835	14654	37	0	15654	19960	
10. घाटमपुर	35488	10360	45848	30434	15319	76	19	15027	18797	
योग ग्रामीण	171332	80949	252281	143204	104176	4868	33	125306	173579	
योग वनक्षेत्र	0	0	0	0	0	0	0	0	0	
योग नगरीय	14335	1656	15991	10831	5055	105	0	5027	5095	
योग जनपद	185667	82605	268272	154035	109231	4973	33	130333	178674	

स्रोत :-

1. भूलेख अधिकारी, कानपुर
नगर

2. अर्थ एवं संख्या प्रभाग, कानपुर
नगर

**RURAL URBAN FRINGE IN UTTAR PRADESH :
ISSUES OF DEVELOPMENT INDUCED
DISPLACEMENT**

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Lucknow

Paper Presented at the
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Rural Urban fringe in Uttar Pradesh: Issues Of Development induced Displacement

Dr B K Bajpai*

Introduction

The paper analyses the problems of development projects related displacement of rural population owing to increasing urban fringes in rural areas. Displacement of rural population, falling in the catchment area of six development projects, located in four geo-economic regions of Uttar Pradesh and one in Uttaranchal (earlier Hill region of UP), shows a wide spread mismanagement of the resettlement and rehabilitation programme. The impact of the development projects on displaced population has been assessed taking into consideration the existing rehabilitation policies of the government. The impact of displacement on affected families has been assessed through the study of: (i) changes in the economic profile; (ii) the process of displacement; (iii) process of land takeover and compensation; (iv) resettlement and rehabilitation plan of the project; (v) impact of displacement and resettlement on infrastructural amenities and employment; (vi) changes in the health and the environment; (vii) social and cultural impact; and (viii) performance evaluation of the rehabilitation officials. In the light of these problems, paper further makes an attempt to evaluate the existing rehabilitation policies and the compliance of Government orders in this connection.

Methodology and Sample Design

The present paper is based on the results of a broader study conducted by the author in the institute. Primary data for the study have been collected from 969 households of 29 villages in the catchments areas of different development projects located in six districts of Uttar Pradesh (including Dehradun). The secondary information has also been used to locate the location and identification of the project affected village sites. The list of affected villages coming under the catchments area of respective development project has been procured from relevant offices at the district head quarter level.

Displacement and Impact

The analysis indicates that the development projects may be a boon for some but they are a curse for the rest. The psyche of the affected population is to be understood

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properly. The government agencies involved in the rehabilitation programmes is hardly capable of such understanding.

The value assessment of the land and houses is done in a very old and traditional manner in order to see that the displaced are given a minimum amount as compensation. The maximum satisfaction of the oustees has seldom been an aim of the project officials.

Corruption has become a general practice in the disbursement of cash compensation in almost all the cases of development projects. The timely disbursement of the compensation money has been a rare practice. The unconcerned attitudes of the project authorities is reflected by the fact that in many development projects much more land is often acquired and it remains waste for years before the eyes of the displaced population. In case of the lakhwar Vyasi project in Dehradun, the project work is standstill for the last so many years. The farmers are hardly allowed to cultivate on the acquired land, which is lying unused.

In case of the housing projects the government agencies involved in the process are making huge profits through the resale of the acquired land. No additional reward is paid to the original owner of the land. In the event of a loss of job in course of the displacement, it becomes the duty of the project management to provide alternate employment and impart timely training to the displaced persons for a successful future in a new job. Such efforts are seldom made by the project authorities.

Considering the mass illiteracy among the project affected population, the role of the people's representatives become very important in helping the project affected population for attainment of their claims. But many times they fail to fulfill these promises and prefer to join the administration to impose exploitative terms on the displaced population.

In the process of displacement landowners are rewarded even if they are not present during the process of the land takeover. But tillers are not adequately compensated under this process.

In most of the cases the displaced population preferred land for land than other types of compensations. But, in the absence of the land area, none of the displaced families could be given land for land at least for agricultural purposes. The adamant attitude of the land oustees in this regard is seen because they do not want to enter new ventures. Neither they have a liking for such ventures nor they are trained enough to do so.

Most of the projects were found to be situated in remote areas inhabited by indigenous peoples. These peoples were dependent for their day to day existence on the forest and other natural resources. With the cutting of the forests, their very base of existence was uprooted. They were not having the required exposer to reorient themselves

for alternative sources of livelihood. In these circumstances, they are left alone to face the adversaries of the displacement.

Displacements under most of the development projects not only uprooted the people from their homes but also from their culture and tradition. After displacement the affected population lost their temples and ancestral land, which have been a part of their life for generations and cannot be replaced at any cost. This led to a loss of the rich culture and tradition, which have been followed by them for generations. The displaced persons underwent the entire process of relocation and adjustment to an unfamiliar environment. As a consequence there of they suffered bath physical and psychological stress.

In the case of almost all the six development projects, whatever cash compensation was provided to the displaced families, a major part was spent for unproductive purposes. Most of the households ate, drank and became merry but only for a few days. Afterwards, they were paupers and a complete picture of misery. This called for a provision of 'land for land' in the project areas. But none of the development projects under this study had the provision to do the same.

In the absence of a proper resettlement and rehabilitation plan for the displaced households under the development projects, there were following negative impacts on the lives and livelihood of these affected households.

As a result of unleashing a faulty rehabilitation and resettlement system in the project area, there has been a nultiplication in individual and social empowerment, including homelessness and the growth of new slums; physical, psychological and emotional trauma; insecurity for the future; medical hardships and the onset of diseases, substantially higher transportation costs, loss of livelihood and traditional lands, the removal of children from schools, arrest of those opposing an eviction, loss of faith by victims in the legal and political system, loss of culturally significant sites, confiscation of personal goods and property, substantially higher housing casts, absence of a choice of an alternative accommodation, increased social isolation, and tension with dwellers (host population) already at resettlement sites.

Rehabilitation Policy

India does not have a rehabilitation policy. In the past, R & R programmes have been found unsatisfactory. Only few states have their awn R & R policy. These have not been monitored by the independent agencies.

The Ministry of the Rural Areas and Employment, Government of India is finalizing two legal measures an development - induced displacement. The National Policy far

Resettlement and Rehabilitation of Displaced Persons (NPRR, 1988) has many positive aspects as well as shortcomings. But the Land Acquisition Bill (LAB, 1998) ignores the draft policy. It enunciates the following principles:

1. Displacement should be minimized. So people displacing projects should be the last option after studying non-displacing and least displacing alternatives.
2. It recognizes that displacement results in "state-induced impoverishment" and that "non developmental project can be justified if a section of the society is pauperised by it."
3. Informed consent of those to be affected by it should be mandatory. The project is to be explained to them. They may question every aspect including its public purpose and environmental impact.
4. The definition of the DPs/PAPs goes beyond land owners to include those who depend for sustenance on land owned by others or on the common property resources (CPRs). As such compensation should be given for the CPRs and other livelihood cost.
5. The welfare of DPs/PAPs is a pre-condition of the project. Rehabilitation is mandatory and should go on side by side with the project and should be prior to dislocation. The DPs should be resettled as communities and should have a better life-style after displacement than before it because they pay the price of development. They should be the first beneficiaries of jobs and other project benefits.
6. Often moneylenders and other outsiders usurp land in the area to be acquired after news spreads about the possibility of a project. When the project is notified, they get most benefits meant for the DPs/PAPs. As a protection against it, NPRR, 1998 includes among the DPs/PAPs only those who were residents of the area three years before the notification under section 4.1 of the Land Acquisition Act, 1894 (LAA, 1894).
7. Land for land is recommended as compensation or rehabilitation to all the DPs/PAPs as is mandatory for tribals.

It also has some shortcomings. The 'public purpose' for which the land is acquired under LAA has not been defined even more than a century after its enactment. In the absence of a definition, courts have generally accepted as 'public purpose' whatever the Government so declared, including transfer of land to the private sector. Abuses are intrinsic to this stand. In project after project, more land than required is acquired and then sold for profit. The social activist DP/PAP combine has been demanding a restrictive definition to

include only schemes of genuine welfare of the biggest possible number, such as educational and health institutions and housing for the poor. NPRR 1998 says that the project should be according to the public purpose, but does not define it or state that it should be defined in a restrictive manner.

Besides it does not give adequate importance to the cultural aspects except in the rehabilitation of the tribals. Nomads are mentioned only in passing. The gender issue does not receive the importance it deserves. Though made mandatory, rehabilitation is not mentioned as a fundamental right. Thus, it remains a welfare measure. Past DPs/PAPs are alluded to but their rehabilitation is not mentioned. According to estimates at least 213 lakhs were deprived of their livelihood between 1951 and 1990. More than 40 per cent of them are tribals. Less than a third of them have been resettled even partially. Today their number must be 300 lakhs. But being voiceless they are displaced without their consent and ignored.

Besides, a policy is not legally binding. It requires a law but NPRR 1988 makes no provision for it.

Package for Rehabilitation

On the issue of diagnosing policy package of rehabilitation for displaced population from development projects, the experts are found to have holding two extreme views. The experts belonging to social volunteer's group intend to uproot the existing administrative set up to facilitate displaced population through rehabilitation package. The experts, belonging to state administrative group, try to remain more particular towards abiding state laws while recommending rehabilitation package. This makes rehabilitation package antidisplaced population. For all practical purposes in such policy issues a midway should be adopted. Following are some policy measures to evolve a package for rehabilitation.

1. The displacement should be avoided wherever possible and minimised when not avoidable.
2. When displacement is unavoidable, a relocation/ resettlement plan should be prepared and implemented which allocates sufficient resources to ensure that those affected are fairly compensated and rehabilitated. They should be benefitted from the development process on a sustainable basis. At minimum they should be no worse - off than before displacement.
3. There should be full participation in the planning and management process by the main parties involved, in particular the communities affected.

4. The parties benefitting from the development causing the displacement should pay the full cost of the displacement and relocation process including the socio-economic rehabilitation of those affected to at least their formal level.
5. Compensation should be paid in terms of land. In case land compensation is not possible then the benefit should be in terms of employment in or outside the project. In Self-employment schemes & training for skilled or semi-skilled jobs, women should also be given equal opportunity and benefits.
6. The new land source could be the degraded forestland. Tree farming, including horticulture, should be encouraged with assured markets.
7. Only irrigated land should be reclaimed. Land without water should not be deemed fit for oustees.
8. Demonstration farming (including tree farming) should be done and land should be given only when the income becomes at least double of the original holdings of the oustees.
9. The 'tiller' should receive compensation as rightfully as owner of land receives compensation.
10. Market value should be given much before the land acquisition.
11. The minimum land should be acquired.
12. Rehabilitation should be a part of any development project. The cost should be born by the project implementers. It should also take into account whether there are any alternative than to displace people. If displacement is unavoidable, the project-affected people should be rehabilitated as a unit not in fragments.
13. The resettlement site should as close as to the original site and contain all the facilities, which were available earlier. Proper care should be taken to protect culture and tradition of the rehabilitated unit.
14. There should be a periodical evaluation of the government agency involved in the resettlement process and the rehabilitation programmes of the project. The evaluation should be conducted by an autonomous body.
15. While preparing the resettlement and rehabilitation programme for the project affected site, the project affected people should be involved in meetings and discussions. Transparency about R & R and other information should be maintained at all levels.
16. Loss of natural habitat should be compensated by a realistic programme and should involve the local community.
17. Integrated social groups should be resettled together.

18. The process of land takeover for development project should route through Panchayat level. No land acquisition should be allowed without prior permission from Panchayat level. All the resettlement and rehabilitation works should be undertaken under the supervision of village panchayat of the concerned area.
19. There should be a compulsory provision of equal compensation rate for equal quality of land in two independent development projects located at nearby places of adjoining places.

Project Employment - Compliance of National Draft Policy

After many more efforts in the past, in 1993, it was finally decided to formulate a national policy for rehabilitation of displaced persons. The document has come to be known as the draft policy. It proceeds from a basic assumption that displacement involves a trauma, which can not be fully compensated but can be mitigated to a large extent in physical and economic terms. The draft policy addresses itself primarily to the needs of disadvantaged communities. Among other things, it involves a commitment to ensure that displaced persons are better off after than before displacement, and visualizes displacement as an instrument of a positive change.

The experience of providing project related employment to displaced persons has been dismal in the past. Project employment has often gone to undeserving or unrelated persons for various reasons. The draft policy seeks to transfer the appropriate decision making power to the Project Implementation committee (PIC) in which the project affected population (PAPs) and the NGOs play a significant role. According to the Draft policy, the PIC will take a decision regarding the number of jobs to be provided, the terming of employment, etc. it is expected that the job and other benefits flowing from the project will be channeled to the deserving PAPs.

In the past, PAP has been denied skilled and semi-skilled jobs due to their lack of the requisite technical abilities and training. The policy provides for the undertaking of a survey as soon as a project is conceived and the forming of a project implementation committee. This Committee would have a major say in selecting candidates from amongst the PAPs and providing them with technical training so that they are in a position to apply for the jobs by the time displacement occurs.

For providing employment opportunities to PAP, the Draft Policy cuts across the dependency syndrome. In the past, the burden of direct employment of the displaced has often fallen heavily on projects, resulting in a permanent efficiency cost. The draft policy

makes another departure from the past by seeking to remove this dependency syndrome. The draft policy provides for employment of the displaced in project construction and related jobs. Sufficient economic activities are usually generated during the construction phase to sustain a large section of the PAPs even during the pre-displacement stage.

Projects generate forward linkages including those in the ancillary sector as large industries provide stimuli for growth in other sectors by the creation of both demand and supply. The Draft policy envisages training for PAPs in entrepreneurship and the provision of capital assets so that they may meet such demands.

The draft plan provides that PAPs should be integrated into the project by being allowed access to these benefits. It also spells out how this may be achieved. Much is also dependent on the development of the infrastructure for enhancing human capital in the locality.

Success and Failure of Draft Policy

The draft policy suffers from a number of deficiencies. It has little to say on gender sensitization and female empowerment. It ignores millions of PAPs who are currently waiting for rehabilitation. Nevertheless, the draft policy provides a helpful framework for a national debate on these and other issues, and the possible basis of a consensus on the rehabilitation policy. The nation has yet to decide whether it is fully prepared to shoulder the burden of rehabilitation of millions of people who have been pushed below the poverty line for bringing prosperity to some sections through the development projects,

Compliance of Rehabilitation Related Government Orders in Uttar Pradesh

The Government of Uttar Pradesh have been alive with project related displacement problems and through the Government orders, issued from time to time, have impressed upon the agencies concerned to look into the matter regarding resettlement rehabilitation of the displaced persons. The study conducted by the Giri Institute of Development Studies, Lucknow, has taken the stock of development-induced displacement and compliance of the Government Orders issued from time to time. The research findings arrived manifestly indicate that in certain cases the Government Orders were observed in breach rather than in compliance.

After a result of faulty rehabilitation and resettlement system in the project area, there has been a multiplication in individual and social impoverishments including

homelessness, and the growth of new slums & physical, psychological and emotional trauma.

Ideally, the process of displacement and resettlement should take place, simultaneously planning development project with sensitivity establishing strong linkages with process and institutions, which identify and address the disequilibrium created by the projects. The government of Uttar Pradesh through Government order dated 28th December 1973 instructed the authorities concerned that appropriate provisions should be made for rehabilitation of displaced persons with no delay and employment to one member from each family should be provided. The requirement of land for the project should be kept at a minimum, as far as it is possible and the diversion of the prime agricultural land should be avoided, user and barren land should be utilized for the development project as far as it is feasible. In the process, number of Government Order were issued and a comprehensive Government Order was issued on 29th February 1996 in which it was underlined, that the provisions made in the Government Orders were not complied in the spirit of words, with the result that the rehabilitation/resettlement of displaced persons could not take a healthy shape. As expressed Government orders through this Government Order, it was made compulsory to employ members from displaced families in the projects. The Government Order further expressed that the displaced persons should not be kept in a helpless situation because they have sacrificed their land, for the sake of development. It is the pious duty of the Government to look into the rehabilitation problem in toto and the project authorities should ensure that the government orders are well honoured. This may result into least litigation and more happiness and prosperity. The District Magistrate and Collector have been made responsible for looking into resettlement problem so that no dereliction is there. The Divisional Commissioners have been made responsible to monitor the rehabilitation problems in the respective division. The study leaves the problem with the optimistic view that such a burning problem will receive due attention and will not end with abortive efforts.

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GLIMPSES OF THE RURAL-URBAN FRINGE OF LUCKNOW METROPOLIS

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Glimpses of the Rural- Urban Fringe of Lucknow Metropolis

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INTRODUCTION:

In the past seven decades geographers have been paying great attention to the aspect of economic and regional development. The process of economic development involves dealing with a number of regional geographical aspects and hence, the problem has attracted the attention of many geographers. During ancient times the cities and rural areas were clearly defined -- by walls or other protective structures around the city. In the cities people were engaged in non agricultural activities and in the rural areas people were engaged in agriculture and animal husbandary. This distinction has persisted through time.

But now, the scenario has completely changed. The towns and cities are growing rapidly. Rapid industrialisation along with an unprecedented increase in population has enhanced the scope of economic activities of urban centres both in magnitude and character. Hence, the cities are expanding beyond their administrative boundaries. It has created complexities and intricacies in their land uses associated with various problems. With the growth of metropolitan cities and large cities, the physical expansion of the build up area beyond their municipal boundaries has been very conspicuous. Generally, their development happens to be in a haphazard, spontaneous and unplanned manner. In this type of development there is a revenue flow of people from city to the countryside. The agricultural lands are transformed for industrial and residential purposes.

"The term rural urban fringe has been used to designate such areas where we have a mixture of rural and urban land uses."

With the expansion of population and increase in number of migrants, the city is unable to accomodate all people and hence there is physical expansion of the city in two steps. The first step involves the occupance of the vacant city areas and the second step includes the encroachment on land areas lying out side the city limits.

According to R. Ramechandran, the tentative definition of rural urban fringe in India may be attempted:

"The rural urban fringe is an area of mixed rural and urban population and land uses, which begin at a point where full city services ceases to be available and the point, where agricultural land uses predominate or where some persons, at least, from the

village community commute to the city daily for work or other purposes.”

CLACIFICATION OF RURAL URBAN FRINGE:

Various attempts have been made to classify the rural -urban fringe. R. J. Prior (1968) divided the rural- urban fringe into –

- i Urban Fringe and
- ii Rural Fringe

‘Urban Fringe’ is contiguous with the central city, exhibiting a density of occupied dwellings higher than the medium density of the total rural-urban fringe, a higher proportion of residential, industrial and vacant units as distinct from farmland and a higher rate of increase in population density and land use conversion and community.

The ‘Rural Fringe’ is contiguous with an urban fringe exhibiting a density or occupied units lower than medium density of the total rural -urban fringe, a higher proportion of farms as distinct from non-farm and vacant land and a lower rate or increase in population density, land use conversion and community.

U. Singh (1966) recognized two types of fringes i.e.

- i. Primary fringe
- ii. Secondary fringe

‘The Primary fringe’ generally along the municipal limits and ‘the secondary Fringe’ are along the regulated areas of towns and cities.

In the present study, the Fringe zone has been divided into two sub-zones:

- i. Inner Fringe or the Urban Fringe
- ii. Outer Fringe or the Rural fringe

‘Inner Fringe’ is characterized by land in an advanced stage of transition from rural to urban land use. It is an area just beyond the municipal corporation limits or political boundary of the city with the high value on the scale of urbanity. Here in this zone development is closer and more continuous, it gets almost all the facilities of an urban centre as - electricity, piped water, phone etc.

The second area in the fringe is ‘the outer zone’ which is an area in which rural land use continues to dominate the landscape but there is infiltration by those urban land uses

which take up too much land to be easily located elsewhere. For e.g. airports, sewage works etc. The built up area may be discontinuous, marketing facilities partially available in the area itself and the percentage of the cultivable land relatively much higher. The major occupation is the production of goods in the town such as vegetables, dairy products etc. This belt is more rural than urban.

However, it will not be wrong to say that there is no physically discernible boundary between the two zones, because both are inter linked and interdependent. An attempt has been made to divide the two on the basis of statistical calculation.

AREA OF STUDY:

Lucknow lies almost in the centre of Uttar Pradesh. According to Indian Surveyor Journal it has an area of 2,544 square kilometers, which is 1.07 % of the states total area. Situated at an altitude of 125 meters above sea level, its position is between 26° 30' N and 27° 10' N latitude and 80° 30' E and 81° 13' E longitude. To its south East and South west lie Barabanki, Unnao and Hardoi districts respectively. To the south of Lucknow is district Sitapur and to its North East is Raibareilly.

River Gomti, Behta, Loni and Reith flow through the district. It has four tehsils - Malihabad, Lucknow, Mohanlalganj and Bakshi Ka Talab. It consists of eight development blocks namely Mohanlalganj, Gosaiganj, Sarojnagar, Chinhut, Kakori, Malihabad, Maul and Bakshi Ka Talab.

Lucknow is the meeting place of three National High ways, NH-24, runs from Delhi, NH-25 Kanpur-Bhopal and NH-28 to Gorakhpur. It is also connected by four state Highways leading to Hardoi, Raibareilly, Sultanpur and Kursi. It is also a meeting point of Northern Railway and North Eastern Railway. Lucknow is connected by Air to Delhi, Patna, Kolkata, Mumbai and other important cities and internationally to Sharjah and Dubai . It is also connected by road with Kolkata (970 Km.), Delhi (499 Km.), Varanasi (317 Km.) and Kanpur (78 Km.).

According to 2001 census the district has total population of 36.47 lakhs out of which 22.45 lakh lived in urban areas. Its population density is 1,434 persons per square kilometer and male female ratio is 1000 : 891. The literacy rate of Lucknow is 69.39 %.

DETERMINANTS OF RURAL URBAN FRINGE:

(A) STRUCTURAL PARAMETER

DEMOGRAPHIC STRUCTURE

The demographic characteristics include various aspects of population growth and density of population. Population growth is nothing but the net change in the population of a given area during a specific period of time. Whereas density of population is the simple ratio between the total population and the total land area and is expressed in terms of persons per unit of area.

DENSITY OF POPULATION

Density of population concerned with the ratio between the size of the population and the area. The Geographers have been making more frequent use of the concept of density of population. This is because it is a simple concept relating population size to the land area with a view to assess the pressure of population upon the resources of the area.

The average density in the rural areas of Lucknow district is 472 persons per square kilometer. The observations of density of development blocks show that Malihabad is the most density populated block, with a density of 574 persons per sq. km. Other blocks having high density include Bakshi ka Talab, Chinhath etc. The least densely populated block is Mohanlal ganj, with density of 399 persons/sq.km.

GROWTH OF POPULATION

Growth of population is the term used for the net change in the population of a region during a specific period of time. Largely, there are three factors that determined the population growth these are fertility rate, mortality rate and migration. Such a change can be measured both in terms of absolute numbers and in terms of percentage. Mortality rate is the most important factor in the population growth. This is simply because, over the years due to improved medical facilities, we have been able to counter the death rates. However, migration factor both in and out migration plays a vital role in the population growth of a region.

The rural urban fringe depends upon the inter play of the push and pull factors of urban centers. Same is the case with the rural urban fringe of Lucknow Metropolis. Every year a lot of people migrate from the rural to the urban areas, in the search of better facilities and luxuries of

life available in the city. This is the major cause in the decrease of rural population growth.

The table shows various phases of population growth, in the Lucknow district as well as in the rural urban-fringe of Lucknow City. There were a lot of fluctuations in the population growth, before the year 1921. Although it seems quite impossible in the present time but the fact is that population graph was actually decreasing till 1921. However, after 1921 population growth was quite steady. Thus 1921 is known as "The Great Demographic Divide". Since then population of the country, as well as the Lucknow district is continuously increasing.

The latest census of 2001 estimated the total population of Lucknow district to be 3681416. This population data shows a 33% decadal increase from the population of the year 1991, which were about 2762801.

The population of Lucknow can be broadly categorized in to two-Rural and Urban population. Since 1921, the population of both the Rural and Urban areas of Lucknow is constantly increasing. But there is a difference in the rate of increase of population. Rural population, on one hand is increasing at a much slower rate, while urban population on the other hand is increasing at very high rate.

The year 1961, shows a fall in the decadal growth of the rural population. However the year 1991, shows a tremendous decrease in the rural population and the urban population on the other hand shows a tremendous rise, within a period of ten years where as the scenario has just changed between 1991-2001. Among the various factors, which determine the population growth, such as- fertility, mortality and migration, such a tremendous rise in the urban population may be largely contributed to the factor of migration. Young youths from the rural areas migrate towards the city area, in search of better educational facilities. The attraction of better job opportunities and various luxuries of life, free them to migrate from the rural areas to the city proper.

LAND USE PATTERN

A city can only grow when there is a favourable situation for a multitude of services and activities concerning trade, commerce and industries. It has been observed that the land use pattern, in the vicinity of Lucknow is partly urban and partly rural. Road and railways have played a significant role in the northward shift of urban area. Urban functions have spilled far beyond the compactly built city mostly along the arteries of communication.

The total geographical area of the district is 252.2 thousand hectares. Table shows

alarming trend in land use. Land use under forest has increased from seven thousand hectares in 1975-76 to 11.41 thousand hectares in 2007-08. This may be because of intensive and extensive afforestation programme undertaken by the Government. Kukrail Reserve forest, protected forests near Musabagh are all evident by the forestation programme by the Government. Barren and uncultivated land decreased as it has been increasingly used due to massive development activities. The area under non-agricultural uses remains almost same, over the years. However cultivable wasteland has decreased from 19.2 thousand hectares to 9.2 thousand hectares. Both the permanent pastures and miscellaneous tree crops and groves have registered a declining trend. A step rise in trend in current and other fallow is observed which can be properly harnessed to meet demand pressure. Area under net sown area is slightly increased in 2000-2001.

Trend of land utilization of 1990-91 and 2007-08, does not show much difference, except for cultivable waste, which has decreased; and current fallow and other fallow which have shown increasing trend.

(B) FUNCTIONAL PARAMETER

ISOCOMMUTATIONS

Lucknow is an administrative city. It is the center of all the major medical and educational institution. The economic, social and cultural life of the surrounding countryside is guided by it. Over the years, commuting has become an important aspect of the fringe of Lucknow. The people from surrounding fringe areas come to Lucknow for different purposes. Some of them are daily commuters, who generally arrive early in the morning and return in the evening.

The commuting population may be grouped as regular and casual commuters. Regular commuters generally include students, service holders and labourers. Students make the daily up - down, for better educational facilities. However, service class people and poor labourers come to the city to earn their livelihood.

Casual commuters are those, who come to the city for the shopping purposes. Their purchasing items generally include- cloths, medicine, grains etc. however, some commuters just come to seek for their recreational purposes.

The commuting population largely guided by the transport facility available in the area. Properly constructed road joining fringe area and the city, as well as adequate transport

facility enhance the commuting activity.

For delineation of the fringe of Lucknow metropolis, regular or daily commuters have been considered. The percentage of daily commuters out of the total population of the village has been plotted and lines have been drawn at an interval of ten percent each, signifying the percentage of commuters to the total population. The commuter zone forms maximum along the Barabanki road, Kursi road, Raebareli road and Kanpur road and also along the railway lines towards Kanpur and Raebareli. The second significant commuting zone is also found in the north along the Sitapur road and railway route. However, the commutation is less significant along the Hardoi road in the west and also along Sultanpur road.

LITERACY

The literacy rate in the city area of Lucknow is much higher than its fringe counterpart. This is mainly because the urban areas have got better educational facilities, which include - sufficient number of schools for children & Degree colleges, good library facilities etc. Rural areas, in turn suffer from lack of educational facilities. Rural people are quite unaware about the importance of education especially of girl child. This is also one of the reasons of low literacy level among the fringe dwellers. However, most of the surrounding villages and one which is well connected with the city has higher percentage of literacy. About seventy percent of the population in the city is literate and educated while the corresponding figures for fringe area is nearly thirty percent.

As it may be enumerated that the total rural literacy percentage is 30.2% and in the urban area, it is 70.1%. Among the development blocks, highest percentages of literates are present in Sarojnagar. It also tops, in the maximum number of literates both in male and female category. However, still much to be done, in order to improve the educational level of the region.

The least literacy percentage is found in Mal, Vikaskhand, where the female literacy level is worst in the district.

DELIMITATION OF RURAL - URBAN FRINGE:

The structural, functional and physical parameters together determine the extent and form of the fringe. Actually speaking, they co-exist in the space at the same time. To determine the limitation of the fringe, the method of zoning of the city has been adopted, in order to include compactly built city, inner and outer fringe zones surrounding the city. The villages, which are

near to the compactly built up city, are almost contiguous and are included in the rural urban fringe of Lucknow. These villages are well connected with metalled and half-metalled roads and enjoy the benefit of transportation and communication. The areas included in the fringe are parts of eastern, south-eastern, north-eastern, western and south-western parts of Lucknow tehsil. The fringe also includes southern and south-eastern parts of Baksi Ka Talab tehsil and western parts of Mohanlalganj tehsil.

Recent trends in Land-use pattern show that land put to grow food crops are decreasing and farmers prefer to grow cash crops. It may be said on this base that percentage of land put to food crop growing decreased from 73.7% to 66.8% between 1994-2004. The net area sown decreased from 68.5% to 55.88% between 2001 and 2004 in the rural areas. This shows that more and more people are getting engaged in non-agricultural activities. The average percentage of non-agricultural labours existing in the urban fringe is 27% and more, and between 12% to 27% in the rural fringe. There is a very slight increase in the land put to non-agricultural uses. It was 23.2 thousand hectares in 1975-76 while in 2007-08, the land area increases to 23.9 thousand hectares. Other functional characters that help in delimiting the fringe includes educational level, commutation etc. The average literacy in the fringe area is 30.2%, whereas literacy percentage of the city population is nearly 70%. The low level of literacy in the rural-urban fringe is largely due to the lack of sufficient educational institutes. As such, younger generation is bound to commute to the city for better educational opportunities. These, commuters include students, labourers servicemen etc. So in case of commutation more than 20% is taken as limit for urban fringe and 10.5% for rural fringe & less to it is the rural area.

The Rural-Urban fringe of Lucknow does not form concentric zones around the city but protends differently in different direction the maximum extend is towards the east, north-east and south-west, where physiographic attributes are highly favourable. The fringe extends along the lines of transport and axial routes but in inter-sectoral spaces, fringe tends to shrink.

The fringe thus, demarcated may be sub-divided into Rural Fringe and Urban Fringe, according to the intensity of urbanity. The urban fringe adjoins the Municipal limits of the city. Actually this zone is intimately connected with the city and is potentially more important for its future growth.

PROBLEMS OF THE FRINGE:

The rural - urban fringe is an area of rapid change in land use and population characteristics. Due to rapid urbanisation process, the urban areas are expanding, in order to receive and accommodate urban population. These expansion create host of problems which are increasing daily with the gradual sprawl of the town on such premature lands some of these problems include -land -use problems, lack of urban amenities and services, housing problem, traffic congestion and transportation problem and administrative problems etc.

Most of the problems are related to the weaknesses of our present administrative framework and its inability to cope with the rapidly changing landscapes of the rural urban fringe of Lucknow.

LAND USE PROBLEMS

Due to rapid urbanisation process, the population of the Lucknow Metropolis is increasing at a faster rate. This in turn, has increased the demand for cheaper lands for residential purposes. The transformation of landscapes starts with the acquisition of rural land for urban uses. The vacant and agricultural lands are acquired by various agencies and built in their own way. The rural - urban fringe is often used for dumping garbage and sewage of the city, for the relocation of city's slums and location of factories etc.

LACK OF URBAN AMENITIES AND SERVICES

The rural-urban fringe of Lucknow lacks most of the civic services that are found in the city proper. Primary urban facilities, such as water supply sewerage etc. are in most part, not available because the city provides these services only to places within the municipal limits. Other urban services like-electricity supply, telephone services, disposal systems education, health care system etc. are also not very satisfactory.

HOUSING PROBLEMS

The rapid growth of Lucknow metropolis has generated a zone of transition between the rural and urban landscapes; population has increased most rapidly in the fringe zone than in the city proper resulting in an unplanned and haphazard growth of new residential colonies. Though middle class people could afford the housing charges, but it is the poorest people who suffer most, since the land prices are such a high that they cannot afford decent housing.

TRANSPORTATION PROBLEMS

The lack of metalled roads joining fringe areas with the city, pose problems for the commuter. Those fringe dwellers that commute daily create traffic congestion, during the rush

hour. To avoid this number of by - passes are required to be built.

Thus rural -urban fringe of Lucknow faces a lot of problems regarding land use planning, proper residential planning, lack of urban amenities etc. So for the proper planning and development of fringe steps should be taken to provide solution to these problems.

SUGGESTION FOR PLANNING & FRINGE DEVELOPMENT:

The present study makes an attempt to provide detail information about various aspects of the rural-urban fringe of Lucknow. However, the main objective of this study is to provide a detail base for the scientific planning for fringe development.

The problems and prospects of the fringe are ignored by both urban and rural authorities because they fall outside their territory. Thus, an independent separate authority should be developed and established to solve the problem of the fringe. Thus, there is need for efficient planning and control of the rural-urban fringe in full adjustment with the city planning. These include –

LAND USE PLANNING

Land use planning is an important aspect of the fringe development. It involves allocation of land for different purposes, such as - residential colonies, recreational ground, disposal sites, Industrial area, etc. Planning should be such so that agricultural lands remain unaffected. Industries are set on that land inappropriate for the agricultural activities. Low lands have been suggested for building tanks and dumping garbage. Like wise other public necessities such as -schools, dispensaries, and markets etc. should be constructed.

RESIDENTIAL PLANNING

The rapid growth of population both in the city and fringe area of Lucknow required a proper planning for residential areas. The residential area should be far away from the C.B.D., and be provided with the adequate public utility services, schools, dispensaries and small recreational centres. The inner fringe belt has been good for the low-income group, multiple family houses, whereas middle income group would prefer outer fringe belt. Besides this provisions should be made to link each house with road.

MEDICAL PLANNING

Medical facilities are one of basic amenities required for the fringe people. Each residential sector should have health centre, dispensaries and medical stores, so as to meet the emergent need of the fringe dwellers. There should be a clinic for the general and maternity purpose and should be accomplished with Doctors, Gynaecologist, nurses etc.

EDUCATIONAL PLANNING

Educational planing should be such as to include schools and colleges for every age group. A nursery school for every hundred families has been suggested at a place away from the busy road. Middle schools have been suggested for the children of age group of 12 to 18 years, for every thousand populations and a High School for every three thousand population. Normally a College has been suggested for a radius of not exceeding three to five kilometer.

TRANSPORT PLANNING

Properly constructed roads are required for joining fringe areas with the city proper. In order to provide better links between the city and the fringe, a number of link roads have been proposed which will almost inter linked all the important places of the fringe with the city. The existing unmetalled roads of the fringe should be metalled and improved. A number of by-pass required linking important regional roads in the fringe.

INDUSTRIAL PLANNING

The industries should be set up at a site, which is not good for agricultural purposes. Industries should be of kind which raw materials used are easily and conveniently available from the area itself. It is proposed to establish agro based and agro fostering industries in agricultural areas such as rice, flour, & oil mills, fruit canning, dairy etc. There is U.P.State Industrial Development Corporation (UPSIDC) for the development and progress of industries in the area.

AGRICULTURAL PLANNING

Green belts include the parts of the open and cultivated areas of the fringe particularly of the outer part. Here, horticulture, pisciculture and other profitable agricultural pursuits can be carried, on keeping into view the investment profit ratio. The existing pattern of agriculture has been transformed by introducing profitable cropping patterns. The plants and trees should be planted so as the cope with the increasing pollution.

(21)

SOCIO-SPATIAL IMPACT OF RURAL URBAN FRINGE

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SOCIO-SPATIAL IMPACT OF RURAL URBAN FRINGE

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To a very large number of people, the dullest landscape may have a story back of it packed with events and human interest out of all proportion to its apparently ordinary appearance. Any where in the world the face of the land faithfully reflects the culture of the people who live upon it. Where the land is poor and worn, so are the people who strive to maintain themselves on its inhospitable surface, and where the land is rich and bountiful, the people who inhabit it have an opportunity to live a rich and bountiful life. This reality fits very well within the Indian context of urban rural fringe.

The social and political categorization of an area reflects the need of a changing society. The growth of population puts great pressure on agriculture for more food and industries for further development. In the early industrial era, the area was an enclave of industrial ground in a completely rural setting. In the post-industrial era this scenario is totally changed. all the same the city sprawled closer, with the semi-urban populations' need.

Urban Sprawl and slum expansion:

To understand the socio-spatial impacts of property-led redevelopment we ought to be aware of the wide changes taking place in the life and living standard of the present day population. On the one hand, an extensive residential displacement occurs during redevelopment even though a process of gentrification emerges. It is indeed an undeniable fact that the re-imaged inner city often promotes economic growth at the cost of an extensive residential displacement. Urban sprawl and slum expansion are major problems which create many social and environmental problems. The highly productive agricultural land is encroached on urban houses, roads and industries.

The Role: Individual vs Local Community:

The role of the individual and particularly the local community in shaping development processes has received more and more attention. Proactive roles have been recognized increasingly for communities and individuals in relatively certain regions as being an integral part of the emerging 'new economy', but the urban fringe has received little attention from this perspective. Glimpses of the role of local agency came partly from varied research into urban fringe agriculture over the past 20 years which has profiled the role of the individual farmer and farm family, but little progress has been made in the appreciation of locality, or socially constructed localized action space, in the urban fringe, particularly in its manifestation through the actions of local groups, organizations and communities. A conceptual framework is proposed to advance our understanding of local agency in the processes of differentiation within the urban fringe. Local agency acts upon the transformation of the local environment to become one of the driving forces behind the process of uneven development and, more generally, differentiation of urban fringe space.

Urbanization, a global phenomenon:

In contrast to the above scenario, urbanization is a global phenomenon experienced by economically- advanced as well as developing countries. As countries place emphasis on industrial development, there is a movement of people from villages to towns and cities and an impetus to the growth of metropolitan areas. In general, cities provide large economies of agglomerations. They also provide a variety of choices- such as educational facilities, health-care services, entertainment options and even friends to people- that are not available in small towns. People migrate to cities for economic opportunities and urban lifestyles.

Although urbanization brings about development in the social, economical and cultural spheres of life it disturbs ecological systems. The increase in urban population results in asymmetric patterns in resource utilization, land use and transportation. Rapid and uncontrolled growth of urban agglomerations generates a series of negative environmental and social effects. These include: lack of infrastructure and basic services, housing problems, congestion, health problems, etc.

In terms of urbanization levels, India is one of the least urbanized countries in the world. Between 1951 and 2001, the level of urbanization increased by only 13%. However, if the size of the population is considered, India has the second largest urban population in the world (**307 million**). The significance of urbanization for India is in terms of population rather than the level of urbanization which is to be taken note of.

In India, natural growth rates and rural to urban migration are expected to raise the country's urban population from 30% of the total in 2001 to as high as about 45 % in 2021 spread over about 4,000 urban agglomerates and towns. There were only 25.8 million urban populations in 1901 and it shot up to over 230 million, as per the 2001 census. The share of economic activity in urban areas would increase from 56 % of GDP in 1990 to about 75 % in 2020. Most of this growth is expected to take place in the major cities of Mumbai (**12 million**), Kolkata (**4.6 million**) and Delhi (**9.8 million**) not to speak of the other six mega cities viz. Chennai, Hyderabad, Bangalore, Ahmedabad, Pune and Kanpur together containing 21 million populations.

The current crisis in urban development:

Sixty years since independence, India is yet to have a comprehensive and integrated approach to guide and plan for the growth and development of human settlements and the relationship of population distribution between urban and rural areas. The fact of the matter is that in the global context today's rural is tomorrow's urban, and that urbanization is inevitable in the face of the economic growth models adopted by our country. The current crisis in urban development is due to multiple factors, such as stereotype plan formulation, weak & wrong policies, and lack of co-ordination among implementing agencies and lack of all round communication between various agencies responsible for the implementation of the policies.

Characteristic features of Indian cities:

Most Indian cities are characterized by high densities, intensely mixed land use patterns, short trip distances, and high share of walking and non-motorised transport. The transport and land-use patterns found in these cities are so influenced by poverty and high level of complexity that it becomes difficult to analyze their characteristics using the same indices as

used for cities in highly motorised countries. There is ample evidence to illustrate the mismatch between urban transportation planning methods and the growing transportation problems. Consequently, these cities continue to face environmental decay, congestion, poor health conditions, etc. Unless we understand the basic nature of problems faced by these cities, the adverse impact of growing mobility on the environment will continue to multiply in the future.

Changing city profile:

The spatial spread of Indian cities has been changing as in other cities all over the world. The city limit is now indicated by urban sprawl. The cities include the old core area, which is usually congested, has narrow streets, old houses, and the land use mixed and relatively unregulated. Then there are unplanned parts of the city, which have developed spontaneously and are often beyond the municipal limits but also within it often along the arterial road or the main highway going out of the city. These spontaneous developments are of two types: one inhabited by lower and middle classes who, due to mismanagement of the land market, cannot afford to buy land for housing. The other category consists of squatter settlements. These can be spread all over the city. These are largely inhabited by the poorer sections of the society specially the construction labourers and the informal workers of the city. In a large city the slums and squatter settlements also increases.

In the mega-cities and million plus cities of India, 40-50 percent of the population lives in these informal housing colonies. The third category of settlements consists of planned residential colonies built by the public, private or co-operative sectors. These are high-income residential houses and multi-storied flats with well-laid out roads, and other urban services. Public transport and private cars give easy access from these locations to the city centre as well as the shopping areas. The fourth category is commercial. It is planned and has multi-storied buildings. These have been located to create multi-centered cities. The fifth and the final category are the urban fringe where the urban and rural divide becomes blurred. Thus the structure that emerges out of complex interplay of physical, social, economic, cultural and behavioural factors does not follow the classical "rich centre and poor periphery" type of model.

There are no clear-cut concentric zones of different activities. Central core areas depict not only commercial but also high housing concentration. The manufacturing activities are spread not only in the peripheral zone but also in intermediate and inner zones. Unlike the Western countries, Indian cities have more than one Central Business District; therefore commercial activities are spatially dispersed. Manufacturing activities are concentrated not only in the earlier old commercial areas but also newly developed industrial areas at the outskirts of the city. Most Indian cities are characterized by high densities, intensely mixed land use patterns, short trip distances, and high share of walking and non-motorised transport.

Land use patterns of the city:

The transport and land-use patterns found in these cities are so influenced by poverty and high level of complexity that it becomes difficult to analyse their characteristics using the same indices as used for cities in highly motorised countries. There is ample evidence to illustrate the mismatch between urban transportation planning methods and the growing transportation problems. Consequently, these cities continue to face environmental decay, congestion, poor health conditions, etc. Unless we understand the basic nature of problems

faced by these cities, the adverse impact of growing mobility on the environment will continue to multiply in the future.

Land use Planning:

Land use planning is the formulation of policies and programs for guiding public and private land use in areas of any size where different uses compete for land. The word 'land' in this context implies attributes of place and other factors besides soil. Planners must consider place, size of area, relation to markets, social and economic development, skill of the land users and other factors. Local government units such as those of cities, towns do local planning. The planning applies to complexes of farms and ranches, to housing developments, shopping centers, industrial parks and to entire communities or political unit.

Building Sites:

Interpretations and instructions are made for the construction of small buildings; for the installation of roads, streets, and utilities and for the establishment of lawns and landscaping of the grounds around the building. Such soil uses involve high capital expenditures in relatively small areas. The preparation of building sites may alter soil properties markedly. Constructions and maintenance of buildings belong primarily to architecture and engineering. Additionally, large multistoried structures are generally supported by footings placed below the depth of soil. The constructions of buildings, roads, parks, parking lots and other similar structures often disturb and displace the local people from their familiar surroundings.

Rural urban migration and the changing urban landscape

CITIES ARE centers of opportunities, of all types: entertainment, employment, education, healthcare and so on. When it is a matter of development, it is true that everything new comes to the city first. But sometimes it takes ages for a particular technological innovation find its way to the fringes of rural India. By the time they manage to reach the last person in the village, the other side of the world dominated by metros and urban landscapes would have gone nautical miles ahead, and the process keeps repeating. This is not going to be practical anymore. Educated youngsters from around the cities migrate to urban landscapes looking for opportunities.

What happens to the urban landscape when it comes to hold more population than what it is really able to hold? It is growth. Landscapes have to grow both vertically and horizontally. Vertical growth is taking place much faster than horizontal growth. Though slowly, horizontal growth takes place really steadily, and it makes our urban landscapes look unorganized and haphazard.

Slums sprout out in every strip of public place. Makeshift living arrangements surface overnight. Streets get congested with people and vehicles. Those small strips of open spaces in the urban areas disappear. Pollutions of all types increase; consumption multiplies as population gets doubled.

People carry on their lives by doing things both legal and illegal. Pressures of life make many pick up bad habits and asocial professions. Crimes increase, law and order get halted and life gets threatened. Drainages get clogged, wastes accumulate, mosquitoes breed, epidemic break out and the city loses its green belt and green cover. Ultimately, the physical appearance of

our urban landscapes takes an ugly look, and ordinary life in the cities becomes near impossible. Can we afford to be so for long? Can our cities be anymore accommodative to this perpetual movement of men and material in its landscapes?

As long as cities remain attractive or rural areas remain aloof, deprived of the benefits of the developments and the eventual opportunities offered by the new world order, we cannot imagine of a city without rural urban migrants. Modern world is more mobile than it was, and the size of the floating population is increasing every day. Added to this are the settlements formed by migrants from distant places.

The vertical growth of the cities is mainly dominated by business houses, real estate holdings, and the affluent section of the society. This growth most of the time gives way to a set of entirely different problems. The pressure these problems exert on the urban landscape is more environmental than aesthetic. City planners and corporation authorities may be able to put some check on any growth that is against the rules on lands and their holding in cities.

The story is different when it is a matter of men and women from a different social landscape transplant their families to an entirely different environment. These people are least bothered of the effects of their presence in a new locale. For them the way ahead is very hard, and making both ends meet is more important than making their places look good. So they live their lives the same way they lived in their native places. The physical appearance of the urban landscape changes without the knowledge of anyone. Only a bird's eye view can get a clear picture of our cities.

What is the way out? Opportunities should go evenly to semi urban and rural areas. The attractions that cities hold need to be accessible to all irrespective of whether one belongs to rural or urban or semi-urban area. Inclusive growth paradigm is the only possible way out we have in front of us. It is natural that people move from place to place. It is more so when it comes to improving their lives. But it is not natural that developments and opportunities are concentrated in a particular place, call it city or metro. If we want to keep people where they are, we have to make their places attractive by way of developments, opportunities, facilities and sustainable growth.

Private players in the growing sectors like IT, ITES management streams, insurance and finance may be encouraged to establish their wares in semi urban and rural areas and they may be asked to give priority to candidates hailing from rural areas. This is to be cautiously executed because, rural landscapes are environment-sensitive, and any development activity aimed at stopping rural urban migration needs to be thoroughly studied to ensure that its impact on the environment is sustainable.

Health Vulnerability: The Distance between Urban Poor and Others:

Urban poor have been categorised as core poor, intermediate poor and transitional poor communities. Core poor households are those whose incomes fall between zero and half the urban poverty line of Rs454.11p (Planning Commission, 2001). Intermediate poor are households whose incomes fall between half the poverty line and poverty line (Rs227.05 and Rs.454.11p). Transitional poor are households with incomes above the poverty line and half the poverty line (Rs.454.11p and Rs681.16p; NIUA, 2001). The Planning Commission in the recently finalised Tenth Plan on Urban Development, Chapter 6.1, has quoted this classification. Urban poor are worse off than rural people on almost all counts; mortality,

morbidity, literacy, etc. and at all levels; national, state and city. Urban poor living in authorised /settlements recognised by local bodies are better off on all social indicators when compared with poor living in unauthorised / illegitimate settlements.

In interpreting the transformation of rural space, much attention has to be given to the macro scale processes shaping capitalist society, particularly those of accumulation and uneven development. **In conclusion, India is heading towards a dismal future, in terms of population, food and space.**

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**HEALTH FACILITIES IN MUNICIPAL WARDS
LOCATED IN FRINGE AREA OF ALIGARH CITY –
A CASE STUDY**

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Health Facilities in Municipal Wards Located in Fringe Area of Aligarh City- A Case Study

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Abstract

Urbanization has caused a rapid growth in urban population, which has created a number of problems for the urban planners to deliver basic needs and built infrastructure to the residents of the concern areas in addition to other facilities, health facilities are of prime importance.

In the present paper an attempt have been made to take into account the health care facilities in wards located in fringe areas of the Aligarh city. The study further explores the extent and efforts involved by the concern departments in providing these facilities.

Aligarh city has attained a status of *Mahanagar*, which has a total population more than six lakhs covering an area of more than 36.63 sqkm, and divided into seventy wards for administrative purpose.

On the basis of exhaustive surveys undertaken in different wards primary information were collected, which justify that the city has medium standard health care facilities, Moreover, they are lacking in wards located in fringe areas of the city. Sizable population residing in these wards does not have proper medical and health care facilities. In conclusion it is attempted to point out the specific localities of the concern wards, and suggestions are made for bringing improvements in the medical facilities to the natives of the concerned ward.

Introduction

India is passing through a phase of rapid urbanization brought with the process of general development; industrialization and migration of population from rural to urban areas with in the country search of better opportunities for earning livelihood.

During pre-independence period population living in cities in India was 13.9 per cent in 1941, which increased to 17.3 per cent in 1951. Before independence nearly 15 per cent people were living in towns, and presently their share has doubled. The reasons for this change in the urban population may be many, but mainly it is attributed to migration of rural people to urban areas.

The growth of population in urban areas is related with a shift of population from villages to urban areas in search of better livelihood. During 1961-71 about 24 million people migrated from rural to urban areas in the country. Each year on an average basis about 4 million people migrate to cities like Mumbai, Delhi and Kolkata. These cities and towns are, however, not prepared to absorb this phenomenal increased incoming inhabitant which leads to haphazard and unordered growth of population. This floating population adds new problems in these cities to municipal bodies that with limited financial resources are incapable of serving such an ever increasing population.

This gap between accessibility and requirement for urban infrastructural facilities has widened a gap over the years which severely affect the problems of space, environment and keep intact the quality of life in urban areas. Several studies have indicated that a large segment of urbanites do not have access to basic services like drinking water, sanitation, basic health and educational facilities.

Over the last fifty years since independence, the country has developed extensive public delivery systems provisions for health care. The Bhole Commission in 1946 recommended that basic health services should be provided to all through Primary Health Centres (PHCs). On the basis of recommendations PHCs were set up throughout the country, each serving about 30,000 inhabitants in their vicinity. The health services, provision for all in India has also largely been envisaged with in the public delivery system even though this sector has a significant presence of private providers. Since independence the government has launched a number of schemes and programmes

for increasing health care awareness among all the sections of the society. Recently there has been a growing demand for privatization and growth in number of private institutions. This phenomenon is more strongly visible in the urban areas where a greater proportion of literate populations live.

The Food Insecurity Atlas of Urban India (MSSRF 2002) suggests approximately 38 per cent of children below the age of three years in urban areas are underweight and more than 35 per cent short for their age. Further, a high proportion of urban poor are not able to meet the nutrition norms laid down by the Indian Council of Medical Research (ICMR).

Both large survey-based case studies have repeatedly shown that health services in the country are characterized by inadequate and inferior infrastructure, poor public service delivery, lack of quality choices for consumers and lack of access especially for the people living in fringe areas due to a high dependence on relatively expensive private facilities.

Objectives

The present study has the following objectives:

1. To examine the distribution of the present social infrastructural facilities, like health care facilities in selected wards located in the fringe of Aligarh city.
2. To examine the conditions of the medical facilities available in selected wards.
3. To examine whether these facilities are easily available and accessible to people living in the fringe areas or not.

ALIGARH CITY

Location Map

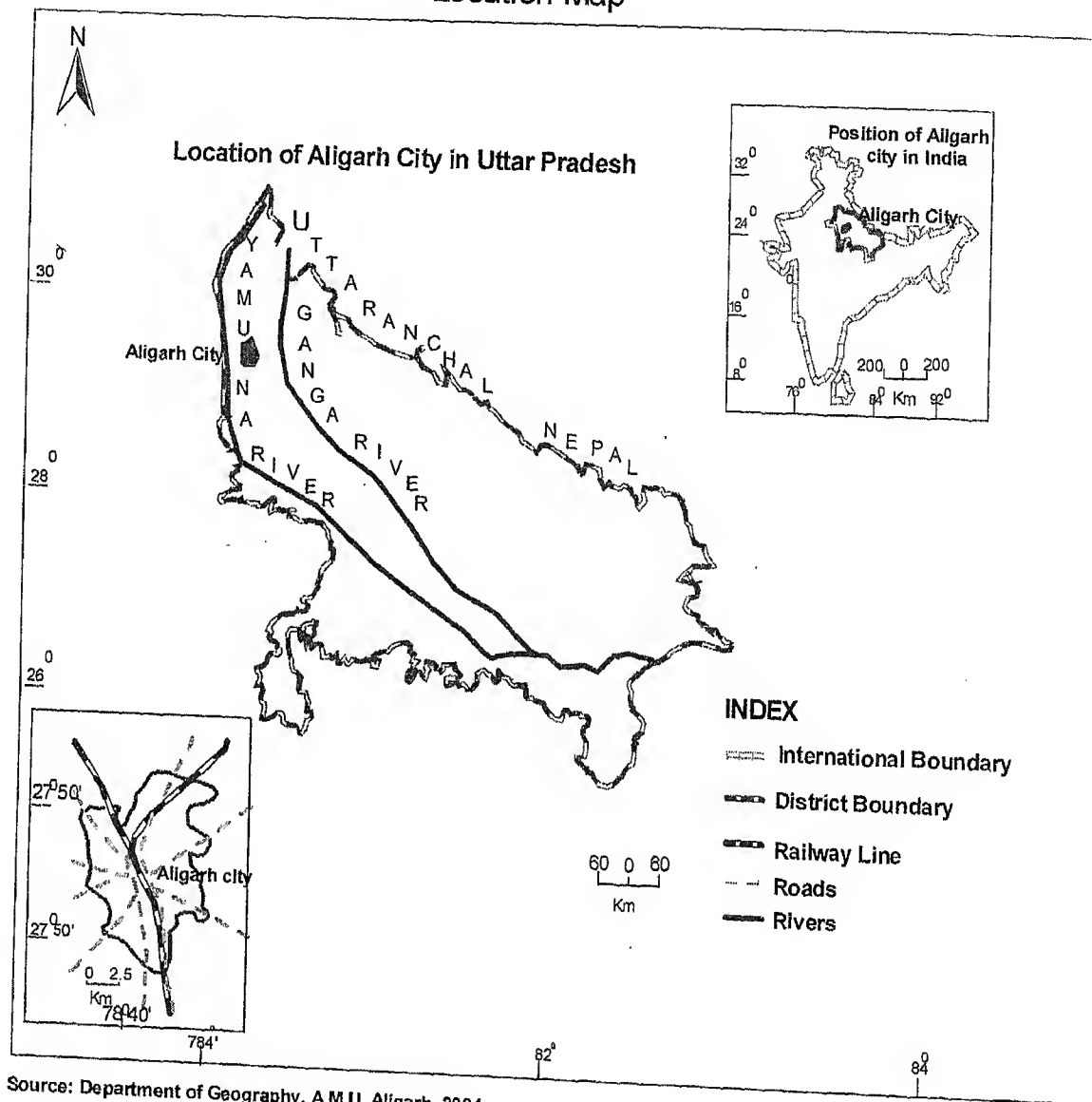
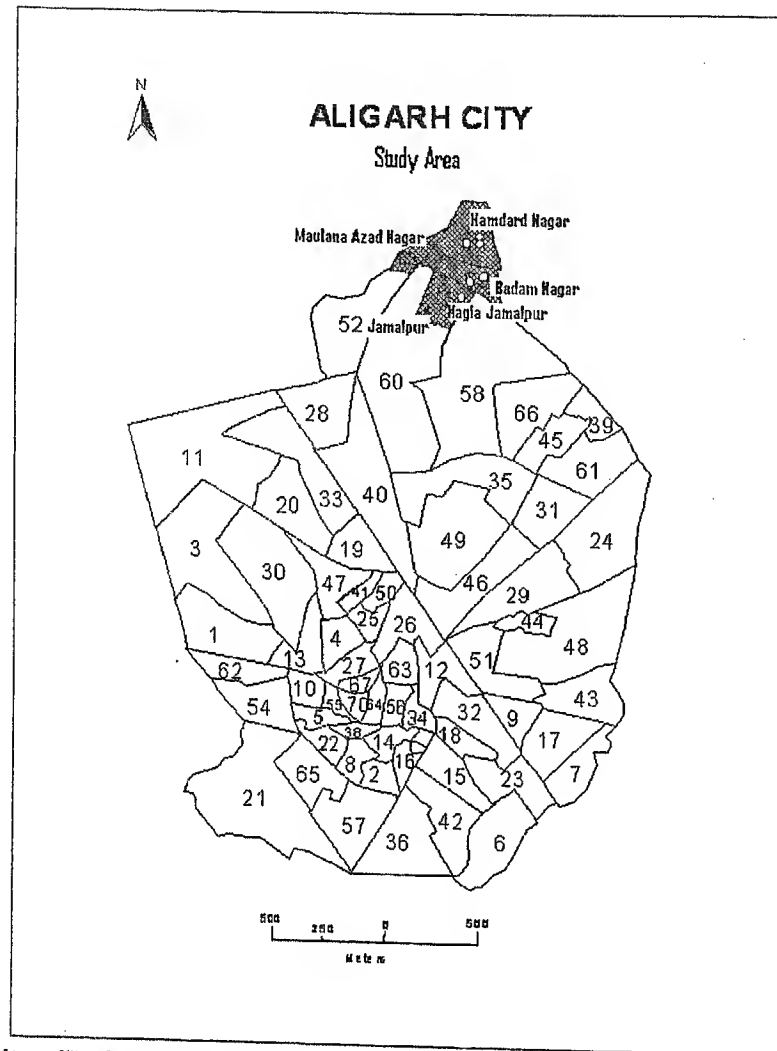


Fig. 1

The Study area

Aligarh is a medium sized city which spreads over an area of 36.70 sq km to form a part of the state of U.P with a population of more than 0.7 million. It is located in between 27.53'N latitude and 78.04' longitude, and lies at about 130 km southeast of New Delhi.(Fig.1)

Like other cities of the state, Aligarh also has a distinct demarcation between the old and the new parts. Delhi-Kolkata Railway Line separates the old and the new parts. The old part of the city comprises of 48 wards and the new part 22 wards. The old city presents the picture of decadence having narrow roads, old and congested houses with improper educational and health facilities, and no open spaces. The new part of the city is much clean than old part, which comprises spacious of Aligarh Muslim University, which spreads over thousands of hectares of land. But new residential colonies and innumerable shopping centers have sprung up making this part congested. Gradually, the outskirts of the city are expanding and encroaching upon rural lands and therefore slums have emerged and are seen roadsides radiating from the city centre.



Source: Office of the Municipal Corporation (Seva Bhawan), Aligarh

Fig. 2

Data Base

This study is based mainly on the data collected from primary sources, but some information was also obtained from the secondary sources. Primary data were collected through extensive city and households surveys, and interviews conducted with the residents in each ward.

Five wards, namely **Jamalpur, Nagla Jamalpur, Badam Nagar, Hamdard Nagar and Maulana Azad Nagar** (Fig.2) were selected which are located in the northern part of the city for conducting households surveys. Detailed information pertaining to health care facilities were collected with the help of a questionnaire, by contacting the residents of the respective wards.

The surveys were undertaken during the months of January and February 2009. On the basis of stratified random sampling 30 to 35 households were contacted for survey purpose. Some other information was obtained from the offices of. Municipal Board of Aligarh city (Seva Bhawan) and Chief Medical Officer (C.M.O) Aligarh city.

Health Care Facilities

Health facilities in Aligarh city are of medium standard. There are three important hospitals, namely Jawahar Lal Nehru Medical College Hospital (JNMCH), Malkhan Singh Hospital and Gandhi Eye Hospital. Besides these there are number of private clinics and nursing homes located quite a part in different wards.

Table 1 shows that medical facilities in the city have grown by leaps and bounds since 1971. In 1971 there were only 3 hospitals, and 9 private clinics in the city. By 2001 the number of hospitals increased to the tune of 12 hospitals, 75 private clinics, and 12 maternity homes.

Table 1

Health Care Facilities in Aligarh city, 1971-2001

Year	No. of doctors	No. of hospitals	No of private clinics	No of maternity homes	Total	Decennial growth rate	
						Year	Percentage
1971	49	3	9				
1981	85	5	18	3	61	1971-81	81.96
1991	109	7	35	5	111	1981-91	40.54
2001	255	12	75	12	156	1991-01	126.92
					354	1971-01	480.33

Source: Office of the Chief Medical Officer, Aligarh (2001)

Table 2 shows inadequacy of health care facilities in the wards, as compared to the facilities in the whole city. Table also shows the absence of government hospital in these wards. People residing in these areas mainly belong to low income group, hence they face financial problem to available medical care in private clinics.

It is evident from the table, that the highest numbers of private clinics are in Hamdard Nagar, but there is no nursing home or hospitals here(Fig.3). In Maulana Azad Nagar there are 4 private clinics which a lowest figure in selected wards Jamalpur ward has 10 private clinics ensuring medical care.

Table 2 further shows that wards like Jamalpur and Hamdard Nagar have more private clinic where as, Badam Nagar and Maulana Azad Nagar wards lack in number of private clinics and nursing homes.

Table 2

Distribution of Health Care Facilities in Aligarh City, 2007

Name of ward	No. of Govt. hospitals	No. of private clinics	Nursing homes	Hospitals
Jamalpur	-	30	5	-
Maulana Azad Nagar	-	4	-	-
Nagla Jamalpur	-	10	-	-
Hamdard Nagar	-	33	-	-
Badam Nagar	-	12	-	-

Source: Based on author's field surveys.

It is evident from table 3 that, about 85 and 82 per cent households in Jamalpur and Hamdard Nagar respectively have easy access to medical facilities, whereas 10 and 11 per cent residents of both wards have to travel for a distance of 2 km to avail these facilities. This is all due to the presence of quite good number of private clinics in wards.

Wards like Maulana Azad Nagar and Badam Nagar(Fig4) have few private clinics, 41 and 35 per cent households respectively have to travel to a distance around 3 km to avail medical facilities.

Table 3
Accessibility of the Sampled Households to the Medical Facilities in terms of
Distance in Selected Wards, 2007

Name of ward	1 km	2 km	3 km
Jamalpur	85	10	5
Maulana Azad Nagar	3	56	41
Nagla Jamalpur	48	37	15
Hamdard Nagar	82	11	7
Badam Nagar	24	41	35

Source: Based on author's field surveys, 2007

Table 4 shows that around 50 to 70 per cent of households in almost all the residents of the wards visit to BUMS doctors for treatment. The reason for such a high percentage of visitors is that BUMS doctor's clinics are easily accessible and charges less for treatment as compared to other MBBS doctors. Therefore, the percentage of households consulting and attending MBBS doctor's clinics is low.

Many of the people have shifted towards the homeopathic treatment, and there is a significant rise in number of the members of households going for homeopathic clinics. Whereas, the percentage of households going for Ayurvedic treatment is very low(Fig.5), because of ignorance and unawareness about this type of patients medical treatment.

Table 4 also reveals that, 28 per cent of households in Hamdard Nagar visit to MBBS doctors for consultations because they are much confident about the advancement of this type of treatment. Secondly, as most of these residents belong to high income group, so they can easily afford this way of treatment. Whereas, households in wards of Maulana Azad Nagar, Nagla Jamalpur and Badam Nagar mostly visit to BUMS doctors as most of them belong to low income group.

Table 4

Preference of Households for Taking Treatment from Profession wise Medical Practitioners in Selected wards, 2007

Name of ward	MBBS	BUMS	Ayurvedic	Homeopathic
Jamalpur	13	70	1	16
Maulana Azad Nagar	2	65	3	30
Nagla Jamalpur	10	60	4	26
Hamdard Nagar	28	50	8	14
Badam Nagar	9	65	1	25

Source: Based on author's field surveys

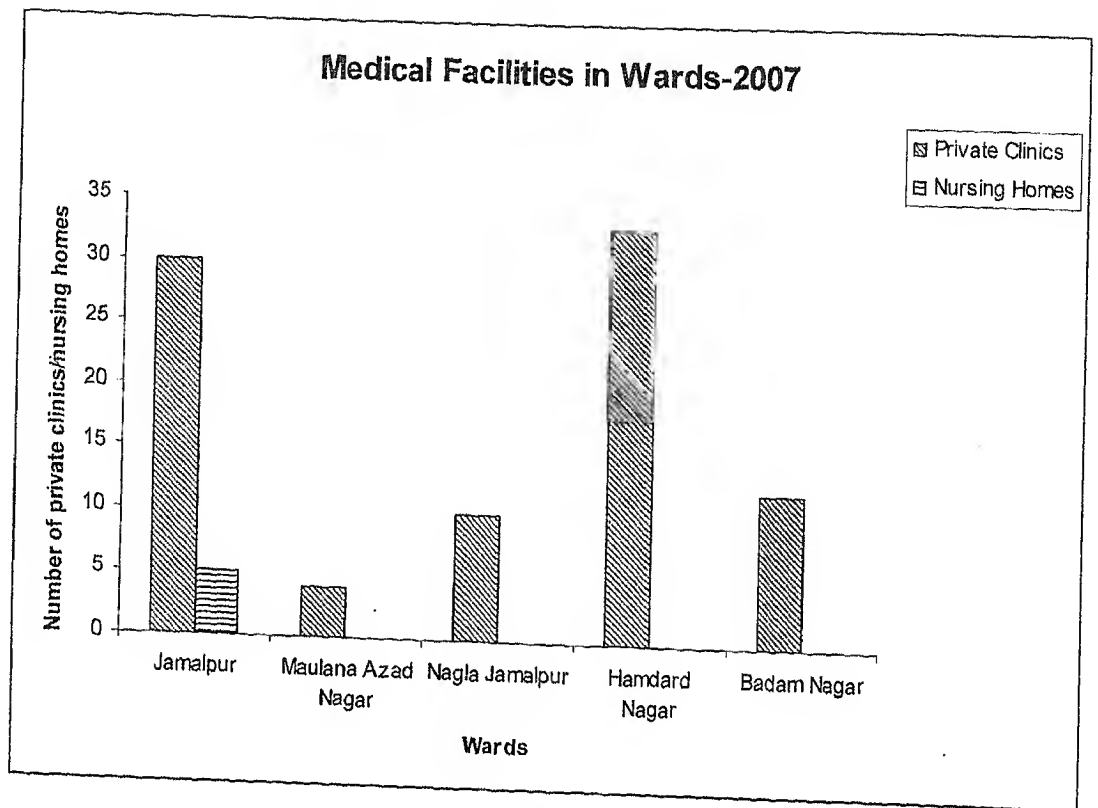


Fig 3

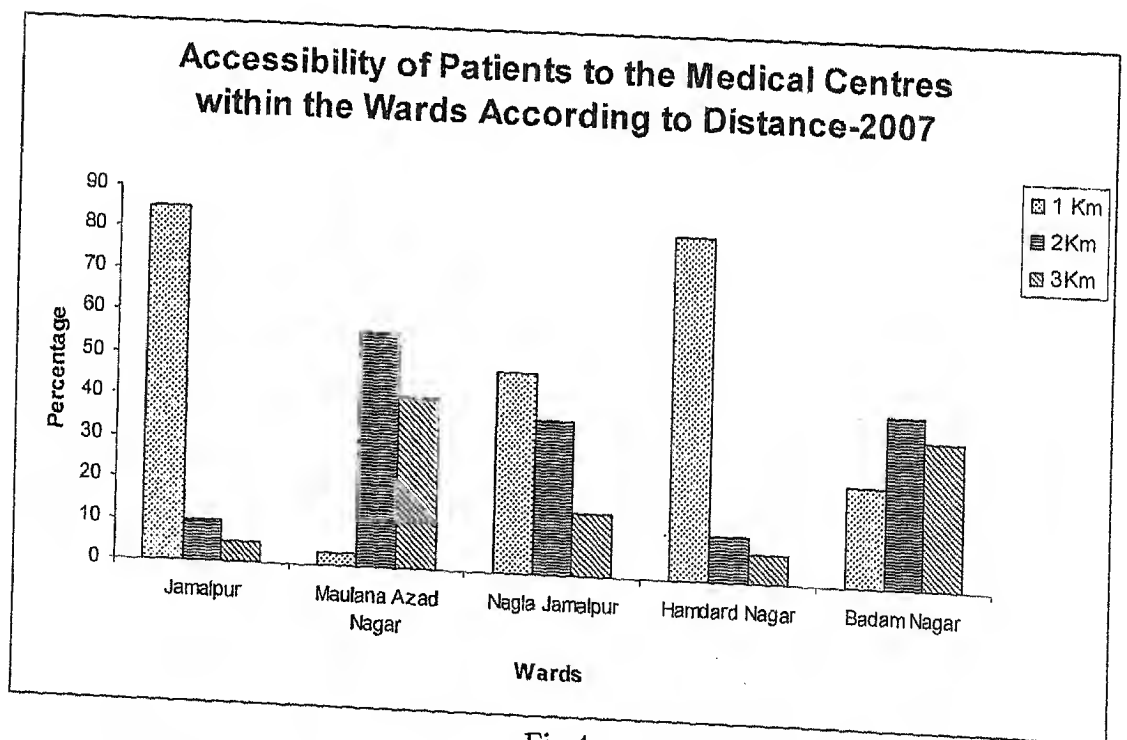


Fig 4

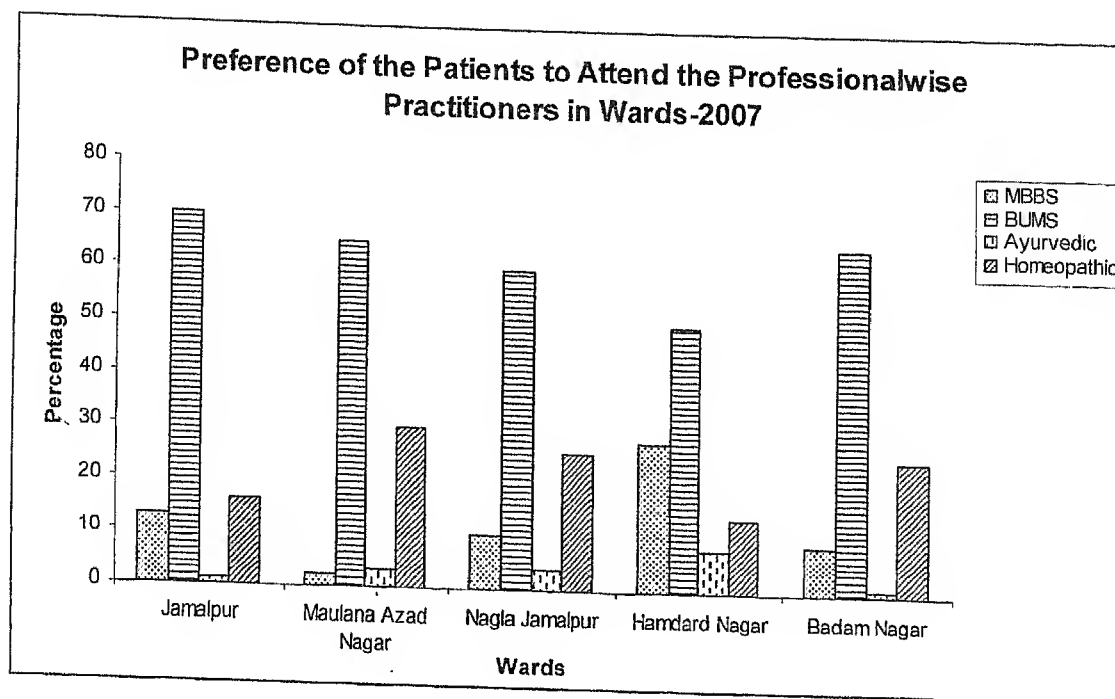


Fig 5

Conclusion

Healthy people build a healthy nation with a healthy growth. Still health care facilities in the cities do not receive the importance specially in fringe areas. The present study shows paucity of health care facilities in wards located in fringe areas and it also explains that whatever the facilities are inaccessible to the residents.

It is the prime duty of the concerned departments and should made the efforts not only to provide proper health care facilities but the facilities accessible be to the people living in fringe areas, by opening government dispensaries at proper distances so the residents can avail them in each wards.

Proper transport and the arrangement of low cost medical buses to and fro for the fringe wards so that people can easily avail good health amenities which are present in core areas of the city. Besides this the availability of mobile medical vanes and ambulances will be of great help.

Conditions of medical institutes and hospitals should be improved by increasing number of beds and doctors, and by facilitating them with advanced appliances. Free treatment dispensaries with qualified doctors and proper facilities should be opened for poors. There is also a need to create awareness among people regarding their health with the help of urban health programmes we can do this.

From the above discussion it can be concluded that health and health care can bring a substantial improvement in social well-being of the society, if they are equally made available in all wards, more especially the wards located in peripheral areas.

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SPATIAL BEHAVIOUR OF DAILY COMMUTERS OF ALIGARH CITY

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Deepika Varshney**
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Abstract

A city tends to exert a dominant influence over a small area in its immediate neighbourhood by virtue of the provision of specialized services. Aligarh city enjoys a central position as the district headquarters with an administrative function. Besides, the presence of individual units, transportation facilities, the social and cultural institutions have made it into regional importance in and outside the district. Aligarh city has been an important source of urban influence. It has become a hub of urban amenities and facilities for the people of the fringe areas. The workers from the surrounding settlements are largely attracted to the city by industries and by the commercial and residential areas.

For assessing the spatial behaviour of commuters, the areas from where people are coming to the city have been demarcated into three zones of varying distances. As only daily labour work force has been considered, the commuters' zone covers smaller area in comparison to other higher order services. The commuter zone of the city is extended to a distance of 45 km in all directions around the city. The greater intensity and frequency of commuters have been found in north eastern direction. Transportation means used by commuters are buses, bicycle and auto rickshaws. Most of the commuters within the distance of 6-7 km come as pedestrian to reach their working place.

The study reveals that large variations in commuting behaviour have been recorded from the city to varying distances. It further reveals that variations are also recorded in commuters' frequency and number of settlements within each demarcated zone. It is evident that centres having large number of facilities induce pulling effect and become centres with greater chances of further growth by attracting and accommodating more people from surrounding areas. Thus a comprehensive planning policy should be taken to promote urban growth to such an extent that each and every small and medium urban centre can serve its population and those living in surrounding rural areas

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Introduction

India is undergoing radical changes in demographic patterns as streams of people migrate to regions which offer better opportunities than their home. Much of this improvement is from rural areas to urban with large cities and mega cities as strong loadstones, attracting people with the promise of better living (Kurukshetra, 2009). In rural areas, appalling poverty, unbearable unemployment, low and uncertain wages, uneconomic land holding and poor facilities for education, recreation and other services work as push factors. By contrast, the pull of urban areas may include better employment opportunities, regular and higher wages, fixed working hours, better amenities of living, facilities for education and socio-economic activities (Chandra, 1992).

Commuting is usually on a daily basis but can occur weekly. Majority of the commuters commute to work in the cities. There is a positive relationship between city size and commuting distance. In developing countries and particularly in India, a large section of population is migrating from rural to urban areas because there is less job opportunities in rural areas. Many do not get employment throughout the year and commute between urban and rural areas. Subsequently, the linkages between rural areas and cities get intensified. As a result, the amount of outgoing commuters from rural settlement to urban settlement increases. Daily commuters are also agents of change who bring new ideas from urban centres back to villages. A city or town may lose its status and function of being a regional centre if commuting practices cease to exist (Bansal, 1975).

In regional planning, it is often argued that regional deconcentration process and urban sprawl tend to increase the amount and distance of commuting (Vandermissen et al, 2003). Due to improved traffic infrastructure and falling transport costs, the spatial division of labour and housing locations extends the travel to work areas and compensates for locational disadvantages associated with local labour markets (Moss et al, 2004). Intensity and frequency of cities and its regions also depend on linkages in terms of distance and the available nature of transport and communication. The greater the distance between a city and dependent town, the lesser will be the interaction and similarly, the frequency of reaching to a city of people and commodities is also affected

with the inter-distance (Verma, 2006). Travel distance is the single important factor that affects effectiveness of transport nodes and consequent commuter travel decision in urban areas (Makin et. al, 1997).

Several studies have been done by many scholars taking into consideration different aspects to each other. Ommeren (1998) derived a framework explaining the job search behaviour of employed individuals. He explicitly took into account commuting costs and residential moving behaviour. Theriault et. al (1999) presented another model and simulation procedure to evaluate optimal routes and to commute travel time for each individual trip of an Origin-Destination (OD) survey data base. Gangrade et. al, (2002) structured a nested logic model of activity scheduling behaviour suggesting two stage decision processes. Corvers et. al (2003) subdivided functional regional labour markets by modeling the commuting behaviour of workers in Netherland. Charren, M. (2007) provided a methodological framework in which the observed average commute is compared with theoretical commuting value: the minimum and maximum average commute. Harvey (2007) studied cyclist commute behaviour in relationship to facility disruption providing a basis for prioritizing future infrastructure improvements and undertakings the impacts of disruptions in neighbourhood of south Minneapolis. Patuelli et. al (2007) offered a network analysis of the spatial commuter's network in Germany by comparing two Spatial Interaction Model (SIM) specifications in order to replicate the actual network structure.

Objectives: In the present paper, an attempt has been made to analyze the commuting behaviour by using the distance travelled from home to the city. Following basic objectives have been taken to pursue the present research work:

- To examine the spatial behaviour of commuters by demarcating the areas from where people commute daily for getting work in the city
- To find out the spatial difference in commuting behaviour by frequency of commuters and distance

Hypotheses: Following general hypotheses have been formulated to find out the facts of commuting behaviour of the city:

- Whether the impact of distance from the city has bearing on frequency of commuters
- Whether there is variation in frequency of persons and intensity of settlements within each and every demarcated zone.

Methodology: To accomplish the above objectives as well as to ascertain the above hypotheses, personal survey was made for gathering information regarding daily commuters through spread questionnaire, on nine entry points:

- Sarsaul on G.T. Road
- Mukundpur on Agra Road
- Pala Aisi on Mathura Road
- Nimri on Gonda Road
- Musepur Jalal on G. T Road
- Kwarsi on Ramghat Road
- Manzoorgarhi on Anupshahr Road
- Panaithi on Sikandrara Road
- Bijona Khurd on Khair Road radiating from the city at peak hours in between 6 a.m. to 9 a.m. throughout the year, 2008. A map of the district showing villages with their locations have been prepared with the help of Tahsil maps obtained from the Uttar Pradesh Administrative Atlas, Census of India, 2001. All the information and data collected have been plotted on map and subsequently commuters zone were demarcated. For the delineation of zones, firstly, data have been divided into 3 categories of high frequency, medium frequency and low frequency zone with the help of quartiles and standard deviation.

Study Area: Aligarh city is located in north India in the western part of the state of Uttar Pradesh. It is located at 27° 53' north latitude and 78° 4' east longitude, 126 km from Delhi and 1408 km from Kolkata (Fig.-1). The city is located in the Lodha block of Koil Tahsil and it lies almost in the centre of Aligarh district. The fusion of historical and geographical elements in Aligarh city has given it a distinct personality.

Introduction of railway line in March 1863 from Tundla to Aligarh has played an important role in the progress and prosperity of the district (Neville, 1926). Aligarh city is the focal point of Aligarh district from where communication arteries radiate to every corner of the district.

Location map 1

Spatial Behaviour of Commuters

A city tends to exert a dominant influence over a small area in its immediate neighbourhood by virtue of the provision of specialized services (Bansal, 1975). So far not much study has been made to this concept but labour sheds are beginning to receive increasing attention from urban analysis (Alexander, 1963). Aligarh city enjoys a central position as the district headquarters where there is an administrative function and their offices. Besides, the presence of individual units, transportation facilities, the social and cultural institutions have made it into a number of regional importance in and outside the district. Therefore, Aligarh city has been an important source of urban influence. It has become a hub of urban amenities and facilities for the people of the fringe areas. The workers from the surroundings settlements are largely attracted to the city by large scale industries and by the commercial and residential areas. For assessing the spatial behaviour of commuters, it is necessary to demarcate the areas from where people are coming to the city. Workers who commute daily using horse cart, auto rickshaws, buses, bicycle and as pedestrians for different purposes, have been surveyed for demarcating the sphere of influence. Figure 2 reveals the spatial difference in commuting behaviour of daily workers with distance from the city. The entire commuting zone has been divided into three zones of varying distances.

As only daily labour work force has been considered, the commuter zone covers smaller area in comparison to other higher order services. It involves surrounding areas of two districts- Aligarh and Hathras. The figure also demonstrates that the commuter's zone encompasses an area of 3,043 sq km and includes 1,011 villages with 19 urban centres. The commuter zone of the city is extended to a distance of 45 km in all directions around the city. The greater intensity and frequency of commuters have been recorded in

north-eastern direction. It can be noticed that the means of communication and transport are less developed in north western and southern portion of the city in comparison to north eastern areas. The same figure also reveals that greatest frequency (from where more than 75% commuters coming to and from the city) has been founded in the north eastern portion of the zone comprising Atrauli and Dhanipur blocks within a distance of between 8 to 22 km. Within this zone, highest frequency value has been accounted in Madrak situated at 9 km away from the city followed by Jawan Vajidpur (16 km) and Mahrawal (8 km). On the other hand, 25% zone having lowest frequency of commuters (from where only 25% commuters commute to the city) is shown by outer boundary. There is a great bulge in its extreme western portion at Dharampur village (43 km) located in Chandaus Block. It represents the farthest point having comparatively low frequency. Within this zone, higher frequency of commuters have been recorded in Charra Rafatpur (30 km) leaving behind Bijauli (32 km). Medium frequency zone has been shown by middle contiguous line.

Further, an investigation has been done to test the relationship between the commuter behaviour and distance within each demarcated zone. For this purpose, the data of each zone has been divided into three categories on the basis of distance with the help of standard deviation. Figure 1a and table 2 show that within the zone of 75 %, higher frequency values of commuters and settlements (5.134 percentage to total percentage and 12.73% settlements to total settlements respectively) have been figured out within the distance of 14-18 km which reveals the highest percentage value in all categories. Relatively low trips of commuters and intensity of settlements (3.580 % commuters to total percentage and 9.09% settlements to total percentage) have been accounted in greater than 18 km distance.

TABLE: 2 In and Outflow of Commuters within the Zone of High Frequency (75%)

Distance (Km)	Settlements(No.)	Settlements (%)	Commuters(No.)	Commuters (%)
<14	3	5.45	18560	2.61
14-18	7	12.73	36444	5.134
>18	5	9.09	25416	3.58

SOURCE: Based on Field Survey

It is interesting to note that lowest value of commuters and settlements have been found with in less than 14 km distance from the city centre. It may be because of changing pattern of occupational structure. Most of the people of the immediate surroundings of the city are generally engaged in other varied primary and secondary services. Consequently those who earns on daily basis are coming irregularly within a month or two only in needed conditions.

Higher percentage of commuters and settlements i.e. 2.075% commuter to the total percentage and 9.09 % settlements respectively, have been found in more than 24 km distance category within the commuter zone of medium frequency (fig.1b and table 3) While the remaining two categories (less than 17 km and 17-24 km) have almost same

TABLE-3: In and Outflow of Commuters within 50% Zone of Aligarh City (2008)

Distance (Km)	Settlements(No.)	Settlements (%)	Commuters(No.)	Commuters (%)
<17	4	7.27	11671	1.644
17-24	4	7.27	10435	1.47
>24	5	9.09	14734	2.075

SOURCE: Based on Field Survey

values in respects of commuters and settlements. Figure 1c and table 4 reveals that with in the areas of 25 %, frequency of commuters and intensity of settlement have been found higher (1.333% commuters to total commuters' percentage and 12.73% settlements in between 27-34 km distance from the city).Lowest percentage of 0.646 % commuters and 5.45% settlements have been registered with in more than 34 km distance from the city which represent the farthest distance in all categories of three zones.

TABLE-4 In and Outflow of Commuters within Less Frequency Zone of Aligarh City (2008)

Distance (Km)	Settlements(No.)	Settlements (%)	Commuters(No.)	Commuters (%)
<27	4	7.27	3640	0.513
27-34	7	12.73	9462	1.333
>34	3	5.45	4585	0.644

SOURCE: Based on Field Survey

Furthermore, it is evident from the table 1 and figure 3 that there emerges inverse relationship between distance and number of commuters coming to the city. This relationship is sustained when all these three zones are combined together. The number of commuters (75%) decrease with increasing distance. Higher trips of commuters for working purposes are coming from less than 15 km distance from the city while it is lowest (7.22% to the total percentage) with in the distance greater than 24 km. it can be clearly understood with the same figure that density of villages is comparatively low (15 in number) in between 0-15 km afterwards it increases up to 23 settlements with in the distance of 15- 24 km and then again decreases. Consequently, higher numbers of commuters are coming from smaller number of settlements.

Transportation used mainly depends on the distance covered by them. So in commuting activities, citizens have many choices in using public transport for their traveling (Tamin, 2005). Mainly commuters use buses, bicycle, auto rickshaws and by walking from their home to working places. Most of the people from with in the distance of 6-7 km come as pedestrian for reaching at their working place for their daily earnings. Others who are covering distance of over 7 km use bus, cycle, auto rickshaws to reach their origin and destination. As Aligarh city is a centre of urban functions, it has great demand of labour work force. The main employment attractions are factories, shops, constructional sites etc; one of the attractions is lock industry which has attracted thousand of workers. Therefore, there is strong relationship of city and its surroundings in this respect. It is observed that most of the commuting is from the places which are:

- Close to Aligarh city
- Situated on roads radiating from the city
- Settlements having comparatively efficient transportation facilities
- Settlements having comparatively high proportion of poor persons.

Conclusion:

The study reveals that large variations in commuting behaviour have been recorded from the city to varying distances. The analysis of the study confirms the spatial behaviour of commuters with respect to distance from the city. It further reveals that variations are also recorded in commuter's frequency and number of settlements within

each zone. It is evident that centres having large number of facilities induce pulling effect and become centres with greater chances of further growth by attracting and accommodating more people from surrounding areas. Therefore, since imbalanced regional development exists in other small and intermediate towns, great flow of working force move daily to the highly urbanized cities by paying a considerable higher transportation costs over longer distances. Thus, a comprehensive planning policy should be taken to promote urban growth to such an extent that each and every small and intermediate urban centre can serve its population and those living in surrounding rural areas. Consequently, their options for working purpose will be significantly increased which in turn will reduce pressure on urban centres. In addition, for further investigation, the examination of special regional circumstances likes polycentric or monocentric spatial characteristics will be a promising approach.

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TABLE-1 Overall Inflow and Outflow of Commuters in Aligarh City (2008)

Distance (Km)	Name of Settlements and Their Location Code	Total Numbers	Total Annual Frequency
<15	Sahajpur(25), Jamalpur Siya(26), Lodha (27), Jiroli Dor (40), Madrak (41), Mahrawal (42), Barautha (47), Morthal (48), Harduaganj (49), Darapur(50), Deosaini (51), Dhaurra Mafi (52), Chikaura (53), Kwarsi (54), Dhanipur (55)	15	563675
15-24	Ajahari (13), Kishenpur (14), Tikari (20), Sikargarhi (21), Sasni Dehat (22), Jawan Sikanderpur (23), Basai (24), Chapauta (28), Meergarhi (29), Jijharka(30), Akrabad (31), Soorajpur(32), Jalali (33), Gopalpur(34), Bhavigarh (35), Raipur (36), Jawan Vajidpur(37), Naronia Akapur (43), Daudgarhi (44), Ahmadpuri (45), Shekhupur(38), Daupur (39), Kalai (46)	23	116209
>24	Dharampur(1), Chandanpura (2), Jalalpur (3) Jamanpur (4), Madanpur(5), Bijauli (6), Charra Rafatpur(7), Bhadamai (8), Shri Nagar (9), Sahnaul (10), Mauhari (11), Dhorau Chandpur (12), Goverdhanpur(15), Northo (16), Atrauli (17), Nagaria Patti Chahram (18), Barla (19)	17	30020
TOTAL		55	709904

SOURCE: Based on Field Survey

LOCATION MAP: ALIGARH CITY (2008)

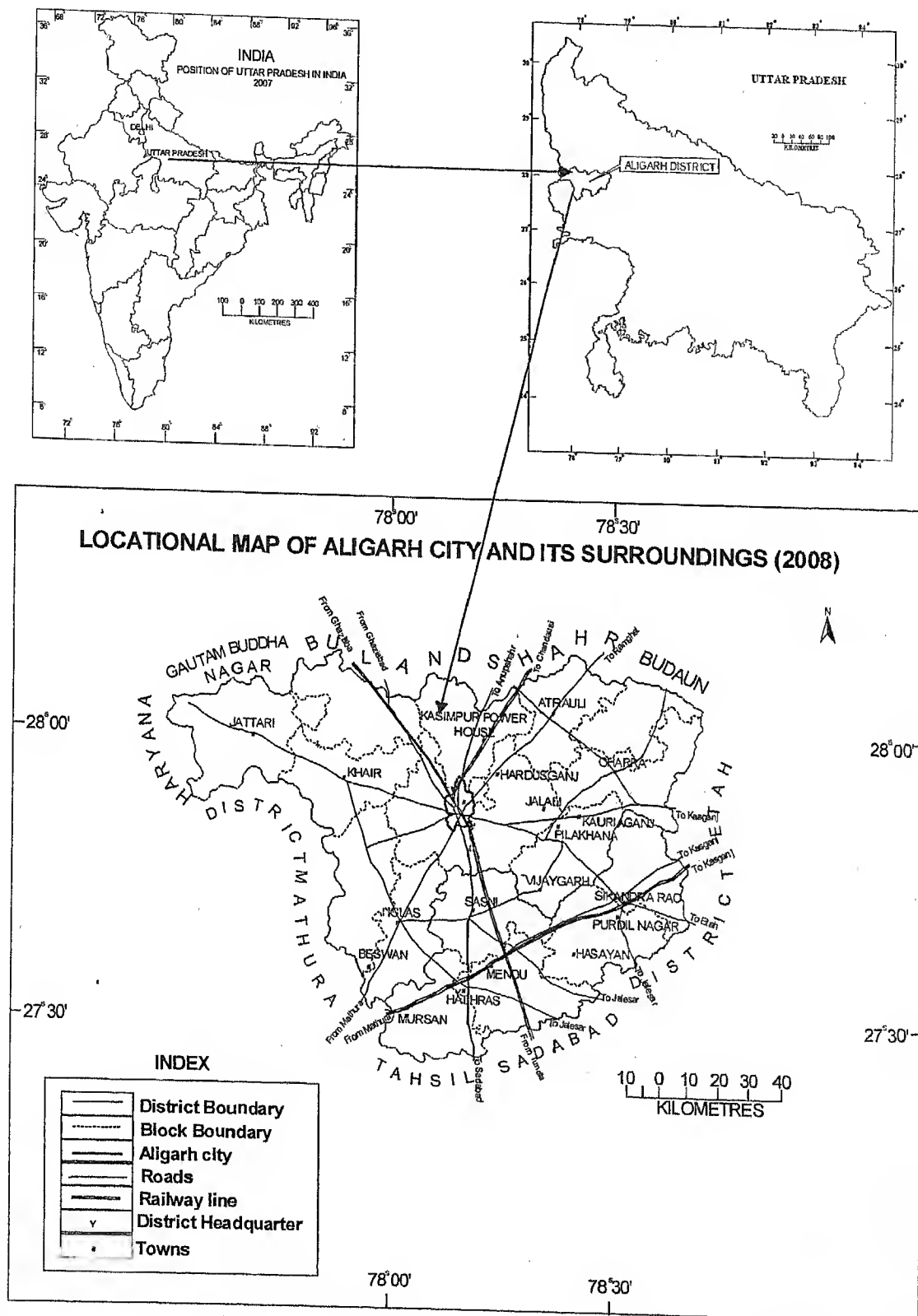
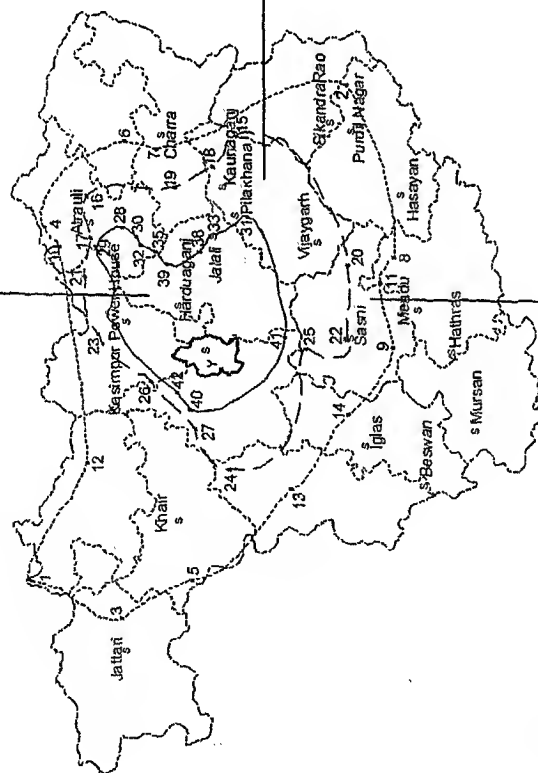


Figure - 1

DEMARCATIION OF COMMUTERS' ZONE AT VARYING DISTANCE FROM ALIGARH CITY(2008)



INDEX

- | # | Zone of High Frequency (75%) |
|---|--------------------------------|
| # | Zone of Medium Frequency (50%) |
| # | Zone of Low Frequency (25%) |
| | Aligarh City |
| | Urban Centres |
| | Village Locations |

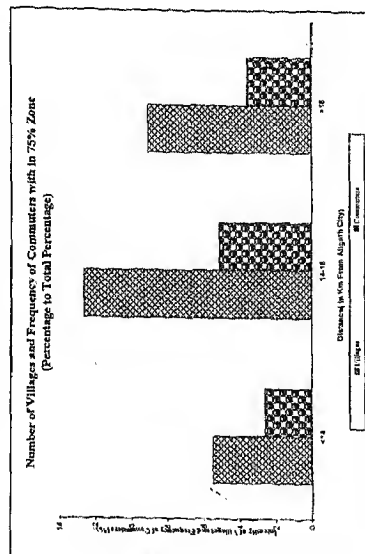


Fig.- 2a

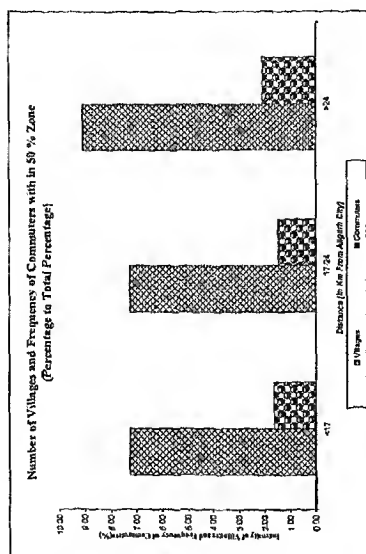


Fig. - 2b

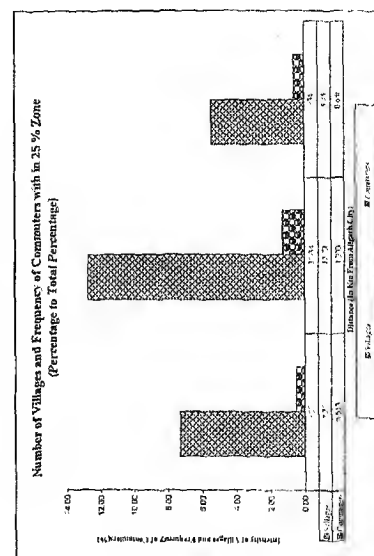


Fig. - 2c

Figure - 2

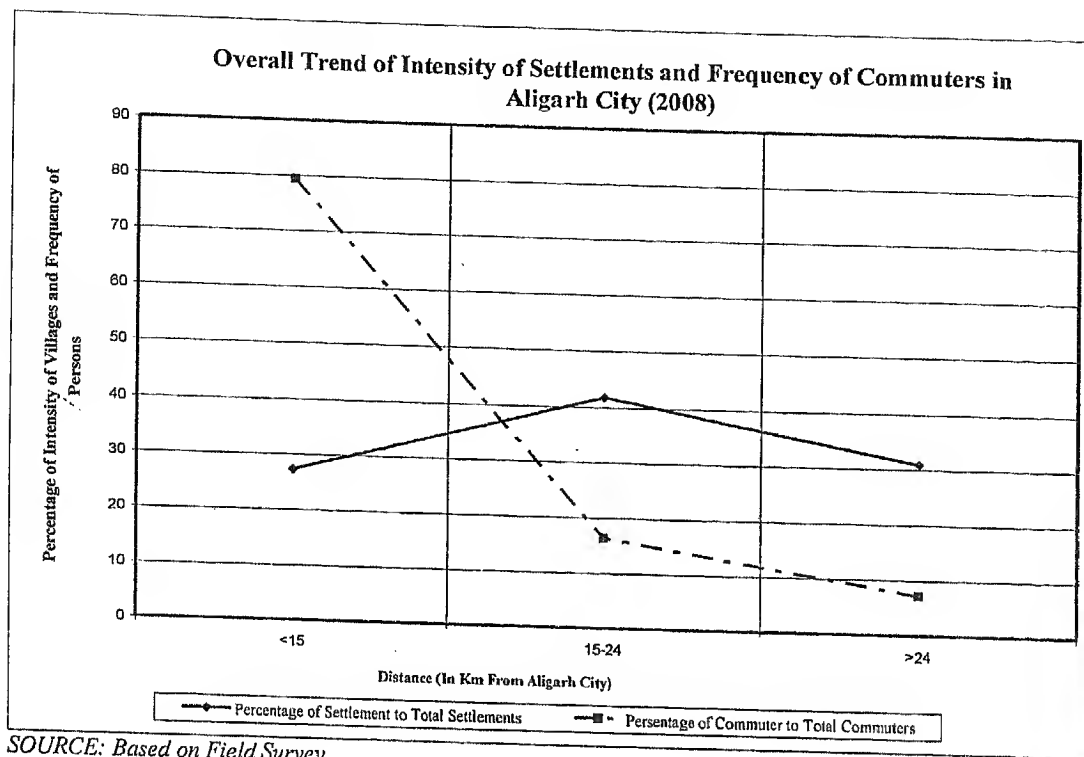


Figure - 3



**INDUSTRIAL DEVELOPMENT THROUGH SEZs
AND ACQUISITION OF LAND FOR IT : FEW
TWINED ISSUES INVOLVED IN RURAL-URBAN
TRANSFORMATION**

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INDUSTRIAL DEVELOPMENT THROUGH SEZ AND ACQUISITION OF LAND FOR IT: FEW TWINED ISSUES INVOLVED IN RURAL – URBAN TRANSFORMATION

NMP Verma* Vinit Kumar**

ABSTRACT

Many SEZs have been established in Indian economy in the recent past. The purposes of establishment of SEZs are export promotion, generation of additional socio-economic activities, increase in investment-domestic and foreign, acceleration in growth and job creation, development of rural infrastructure and maintenance of security within the state and friendly relation with foreign states (SEZ Act 2005, Act 28). Now it is clear that for developing economy like India SEZs may be regarded as vehicle of growth, employment generation and income augmentation on a sustainable basis. In order to fulfill these objectives various state government have allotted hundreds of acres of land to each SEZs. The government acquired first the land from farmers who were hesitated to sell land. The most contentious issue relating to SEZs is land acquisition. After land acquisition and establishment of SEZs and other infrastructure development the area becomes industrially semi-organized or organized. The key issues involved are fixation of compensation for acquisition of land from the farmers, displacement of families and their rehabilitation at a secured place, employment of farmers in case of loss of land. These are the issues which are still hanging for proper settlement. As per the existing findings of various case studies it has been observed that farmers do not wish to give land and oppose the SEZs. The reason of opposition is land is their bread provider. It has also been observed that adequate compensation has not been given to farmers. It is alleged that SEZs model of industrialization reduces more jobs than it creates. Many case studies also reveal that displaced persons do not get jobs for many years in the beginning. A few people got low scale class fourth jobs. Losses to biodiversity and ecological disasters are other controversial issues. In the case of Uttar Pradesh SEZs the situation is not much different. In the present paper an attempt would be made to examine these issues relating to SEZs and rural urban transformation and employment and income augmentation.

The logic of SEZs is based on several propositions. They may attract large-scale foreign capital and modern technology, strengthen export orientation by boosting net export earnings and create employment in labour intensive export industries and rural / urban fringe. After India's Independence in 1947, the Indian government accepted planned economy where the "Commanding heights" were to be occupied by the government. Liberalization was a far cry and not the demand of the day not even for the industrialists who drew up the so-called "Bombay Plan" in 1944-45,¹ in anticipation of Independence, leading industrialists issued what they called "A Plan of Economic Development for India". In the early stages of industrialization, industrialists such as illustrious GD Birla, JRD Tata, Kasturibhai Lalbhai, AD Shroff and John Mathai said that, "The state should exercise in the interests of the community, considerable measure of intervention and control," where, "An enlargement of the positive as well as the preventative functions of the state is essential to any large scale planning".

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The development of Special Economic Zones (SEZs) is one such element which is currently leading to a great deal of conflicts between various actors- either political or societal. The previous Commerce and Industry Minister's answer to this was to improve the climate for exports with FDI as he realized the need for domestic enterprises and manufacturers for India to be competitive globally – as well as raising the infrastructure base also in hitherto underdeveloped regions of India. Since 2000, the government has been seriously thinking of promoting Indian Special Economic Zones, which the aforementioned Minister, Mr. Murasoli Maran, once described as, "Our best dream projects" and as "Magnet and glue – magnet to attract FDI and glue to identify and plan strategies that will benefit a large number of people and organizations. The objectives of the present paper are, to give the theoretical background of the Rural – Urban development to examine the developmental issues under expansion of SEZs in various States including Uttar Pradesh, shifting problem of land from agricultural to industrial like SEZs and the changes thereof. For this there would be shifting of land from agriculture/rural to industry/SEZs/urban sector.

Rural – Urban Transformation Model

The relationships between the urban and rural areas of a developing economy like India encompass the terms of trade between rural wages of labour in the two sectors, the intersect oral transfer of saving, the relative sectoral returns to investment, the relative sectoral contributions to tax revenue and benefits from public expenditure and the extent to which government policies favour one sector over the other. There are at least three set of theoretical frameworks for the analysis of these relationships:

- (a) The Lewis model of economic growth with surplus rural labour,
- (b) The 'coercive', or 'price-scissors',
- (c) Model of economic policy is subject to 'urban bias (Knight and Song, 1999).

a) Lewis Model-

The industrial sector expands by drawing on abundant rural labour in perfectly elastic supply and reinvesting industrial profits. With industrial development in a market economy, the supply curve of labour eventually becomes inelastic owing to a rising marginal product of labour (MPL) in agriculture and a relative improvement in the price

of agricultural goods; in a competitive labour market, the urban wage begins product of labour in agriculture and a relative improvement in the price of agricultural goods; in a competitive labour market, the urban wages begins to rise. Thus the model implies an eventual improvement in the rural-urban terms of trade, an intersect oral transfer of labour but not of capital, and intersectoral equality in labour income. (Also see, Krishnamurty, 2008).

b) Scissors Model-

It is possible for government to finance the growth of the industrial sector in a socialist economy by reducing the producer price of agriculture in relation to industrial goods. By coercing rural people and depressing their real consumption, government can effectively transfer rural saving to finance industrial capital accumulation. This is the model that was followed in the Soviet Union. It implies an initial deterioration in the rural-urban terms of trade an intersect oral transfer of both labour and capital, and government policies with regard to pricing, tax and investment that favour industry over agriculture (also see, Mittal).

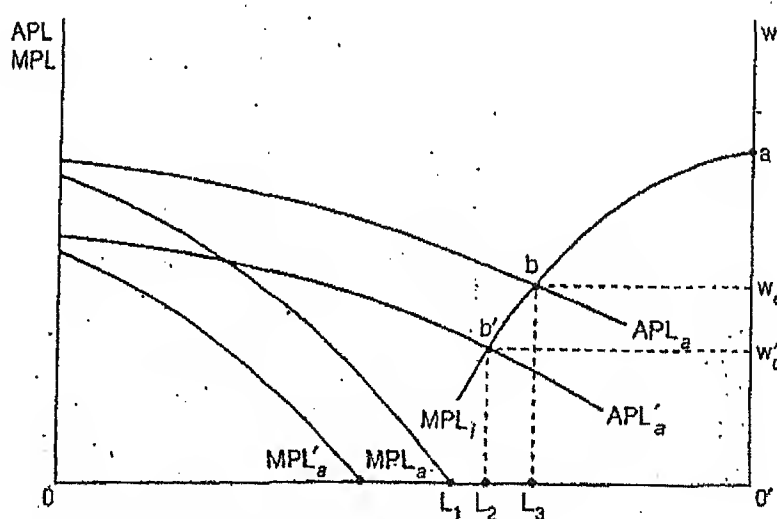
c) Urban Bias-

In economic policies, government systematically favours the urban over the rural sector owing to the political power of urban-dwellers. It is argued that, although they normally form a minority of the population of poor countries, urban-dwellers exercise an influence on government policy which is disproportionate to their numbers. This may be because of urban residence, per se, the proletariat being politically more aware, more militant, and better organized than the peasantry; or it may be that certain dominant groups, such as the industrialists, the bureaucrats, or the educated, are mainly urban. The forms of urban bias might include credit, trade, exchange rate, tax and government expenditure policies to favour industry or urban areas. The government is seen to encourage or permit the emergence of a wage differential in favour of urban employment. This relative increase in urban private and public consumption, in turn, induces rural-urban migration in excess of the absorptive capacity of the urban sector. This will giving rise to urban unemployment and poverty, unless the migration is controlled to protect urban-dwellers. Thus the model implies excessive intersect oral transfer of labour and capital, and relatively high urban wages.

The Lewis and price-scissors models have been depicted in Figure 1. The horizontal axis, OO' , measures the supply of labour in the economy, assumed to be fixed. The curve MPL_a shows the marginal product of labour in the agricultural (here equated with rural) sector. Industrial (urban) employment is measured leftwards from O' . The Indian economy is characterized by surplus labour, it is a labour surplus economy par excellence. This is reflected in the low marginal product of labour in agriculture ($MPL_a = 0$ beyond OL_1). Under these conditions the rural supply price is dependent on the average product of labour. In a competitive labour market in which the rural supply curve is given by APL_a and the urban demand curve by MPL_i , the competitive wage would be w_c and labour allocation OL_3 in the rural and L_3O' in the urban sector. Profits, shown by the area abw_c , are reinvested. This produces dynamic growth of the industrial sector, a transfer of labour from agriculture to industry and an eventual increase in the competitive wage, initially held down by the elastic APL_a curve.

The price scissors model requires only minor modification of the figure. Government intervention to reduce the price of the agricultural product reduces APL_a and MPL_a to APL'_a and MPL'_a respectively. The rural supply price falls. This produces a lower wage, w'_c , in the urban sector. Industrial employment is expanded to L_2O' and the higher industrial profits, $ab'w'_c$, permit faster industrialization.

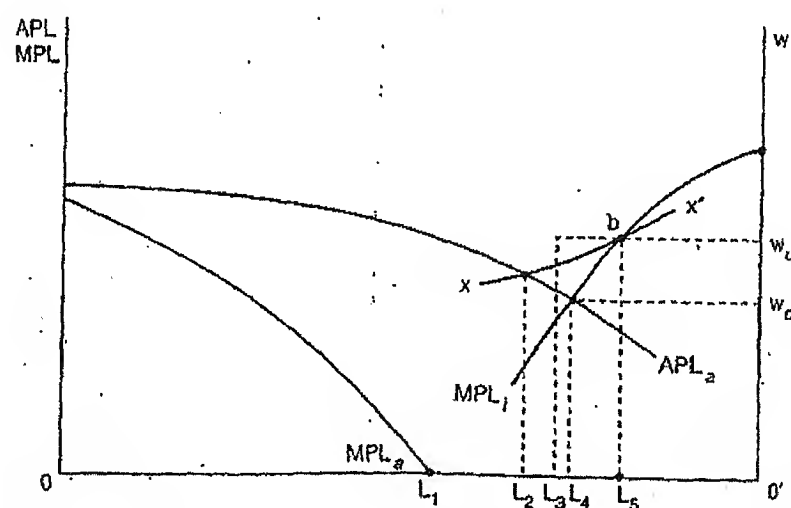
Fig. 1 The Lewis and the price -scissors models



The urban bias model has been depicted in Figure 2. In this case government sets the urban wage higher than the competitive wage, at w_u . In a market economy this would imply urban employment L_5O' . In the framework of probabilistic migration models the 'expected wage' – w_u multiplied by the probability of obtaining it – equals the rural supply price with the probability equals the rural supply price. With the probability equal to the ratio of urban employment to urban labour that the curve xx' , passing through the point b, is a rectangular hyperbola, urban open unemployment equal to L_2L_5 is created.

A government pursuing urban bias policies might oppose this outcome, Government can prohibit open unemployment by controlling rural-urban migration and by creating surplus jobs, L_3L_5 , in the state sector. Thus the labour force is divided in to OL_3 (rural employment) and L_3O' (urban employment). Discontent in the urban sector is reduced by raising the urban wage above the competitive level and by sharing unemployment in disguised from among the urban labour force. Discontent in the rural sector is reduced by sharing out the land equally and so also sharing disguised unemployment among the rural labour force (evidenced by L_1L_3). Urban bias in the form of investment allocation has the dynamic effect of raising MPL_i relative to APL_a .

Fig. 2 The urban bias model



These models offer potential frameworks for addressing rural-urban economic divide in India. As a result the regional fringe transformations. Each of them has been the subject of an extensive literature of exposition, criticism, and debate. Rather than present a review at this stage, we prefer to draw on the literature only if and when it becomes relevant to our application of a particular framework to the Indian economy.

Thus, first, insofar as they rely on market forces, the models should be treated with caution. The Indian economy has been primarily a mixed economy in which strong market forces have until recent years been allowed to operate after economic reforms. Secondly, it is common, in analyzing the early stages of economic development, to equate 'rural' and 'agricultural', on the one hand and 'urban' and 'industrial' on the other. Both the Lewis model is less dependent on it. Again, such a simplification should be examined critically in applying the models are not mutually exclusive: it is probable that each has some relevance to some aspects of rural – urban economic relationship in India at some time.

SEZs: Scenario of Trends in Gaining Moments

The first known instance of SEZ seems to have been an industrial park setup in Porto Rico in 1947 to attract investment from the US mainland, in the 1960, Ireland and Taiwan followed suit, but in the 1980's China made the SEZs gain global currency with its largest SEZ being the metropolis of Shenzhen. From 1965 onwards, India experimented with the concept of Export Processing Zones (EPZs). After the introduction of SEZ scheme in the EXIM policy from 01.04.2000, all existing FTZ/EPZ have been converted to SEZ. These did not quite deliver as much as was expected, however; Thus, in 2000, the New Export and Import Policy allowed for SEZs to be setup in the public private or joint sector or by state governments. Eight EPZ were converted into SEZs. Altogether, a total of 19 SEZs were established prior to the promulgation of the SEZ Act, which were latter – in 2005 – legally deemed as SEZs under the new Act. SEZs have been enabled with a view to providing an internationally competitive and hassle free environment for exports. Units may be setup in SEZs for manufacturing goods and rendering services. All the Import / Export operations of the SEZs units are on a self certification basis. Sales by SEZ units in the domestic tariff area are subject to payment

of full custom duty and to the import policy in force. Furthermore, offshore banking units may be set up in the SEZs.

India is one of the first countries in Asia to recognize the effectiveness of Export Processing Zone (EPZ) model in promoting exports. Asia's first EPZ was set up in 1965 in Kandla. The proposal for setting up the Kandla Free Trade Zone (KAFTZ) was marked in 1961 for following reasons.

- i- To facilitate the development of the Kutch region.
- ii- To ensure greater utilization of Kandla Port and
- iii- To create employment opportunities in the Kandla Gandhidham area.

i) Uniqueness

Uniqueness of SEZs is: Special Economic Systems and Policies. In other words the control government gives to the Special Economic Zones, special policies and flexible measures, allowing them to utilize a special economic management system such as:

- a) Special tax incentives for foreign investments in the Special Economic Zone
- b) Greater independence on international trade activities
- c) Economic characteristics are represented as "4 primacies"
 - i. Constructions primarily rely on attracting and utilizing foreign capitalists
 - ii. Primary economic forms are Sino-foreign joint ventures and partnerships as well as wholly foreign – owned enterprises.
 - iii. Products are primarily export – oriented.
 - iv. Economic activities are primarily driven by market.
- ii) **Objectives of SEZs Policy are²:-**
 - 1. Attract Foreign Direct Investment (FDI)
 - 2. Earn foreign exchange and contribute to exchange rate stability
 - 3. Boost the export sector, especially nontraditional exports
 - 4. Create employment opportunities
 - 5. Introduce new technology
 - 6. Develop backward region

7. Stimulate sectors such as electronics, information technology, R&D, tourism, infrastructure and human resource development that are regarded as strategically important to economy of India
 8. Create backward and forward linkages to increase the output and raise the standard of local enterprise that supply goods and services as to the zone
- iii) **Salient features of SEZs:-**
- i. No license required for import
 - ii. Manufacturing, trading or services activities allowed
 - iii. Full freedom of subcontracting
 - iv. No routine examination of export – import cargo by customs authorities
 - v. SEZ Units to have positive net foreign exchange earner
 - vi. Financial incentives, like tax, holidays, duty free imports and exports
 - vii. Single window clearance
 - viii. High quality infrastructure
 - ix. Strategic location and market access

Special Economic Zones in India are governed by provisions of Special Economic Zone Act 2005 and Special Economic Zones Rules 2006.

Land acquisition under SEZs

Land especially agricultural land in India, is a very delicate subject and has been an emotive issue ever since the Zomindari days. Land is livelihood of millions of people. Not only the immediate owners of the land are affected, but also share-croppers or daily wage labourers who eke out their living through a scant, but reasonably reliable source of income. The farmers of Jamnagar district in Gujarat moved the High Court of Gujarat and later even the Supreme Court to challenge the setting up of a 10,000 acre SEZ by Reliance Infrastructure in November 2006³. They alleged that the acquisition of large tracts of Agricultural Land Acquisition Act. of 1894 but was also in breach of the public, interest this led the government to 'consider' putting a ceiling on the maximum land area that can be acquired for the multiproduct zones and decide to 'go slow' in approving SEZs'. In this context, the left wing parties started demanding a cap on at least the IT SEZs or even putting a final ceiling on the total number of SEZs to be permitted some

small scale protest against land acquisition in Maharashtra were put down by the police, which according to some – ‘served to increase the frustration, anger and suspicion about the state machinery being the agent of the corporate. This can lead to militancy and worse’, was dark forecast in an article in a left – leaning weekly, concurring with the introductory remark made by the former Prime Minister of India VP Singh. Decision making on SEZs has generally been non-transparent. SEZs are imposed on the local people without any prior consultation. Whenever the displaced persons opposed the location of an SEZ, their dissent had been termed “anti-development” and crushed mercilessly with the iron hand of the state. The selection process of the promoters of SEZs is in itself highly non-transparent there is not a single case of SEZ in which the promoter is selected through well established competitive bidding procedures this has provided enormous scope for consumption and political patronage. SEZs displace people on a large scale. The displacement is both physical and occupational. In some states like Andhra Pradesh, some SEZs are located along the sea coast, cutting off fisherman’s access to the sea from which the latter eke out their livelihood. In many places, small agriculturists are thrown out of their homelands and along with them, those that depend on agriculture, such as artisans and rural workers have also lost their livelihood. In the past the land acquisition law which is indeed a draconian one had been used to acquire lands for genuine public purposes such as schools, hospitals etc. it had rarely been used to further private interest, as is the case now. (Mukherji,2007).

The regulatory framework for acquiring land under the Land Acquisition Act (LAA, 1894) is ill suited for serving a rapidly growing economy. The Land Acquisition Act allows the government to acquire land for public purpose. Public purpose was defined for an age when the government used to carry out many development activities, which are in the domain of the private sector today. An SEZ is a case of public – private partnership (PPP Model) in building township, which will be run and administered largely by the private sector for generating export oriented and profit making activities. All a time when displacement, relief and rehabilitation issues were not clearly resolved for government projects such as dams, roads and bridges, SEZs posed a serious challenge to the regulatory framework governing the acquisition of land. Most of the farmers do not want to sell their land; following are a few statements by the farmers of the villages affected by

the SEZ. Farmers were paid Rs. 20 lakh per acre by the government. But the market price for the land on the fringes of bustling Gurgaon is at least 2 crore per acre. "None of us wanted to give our land. The government took it away by force and then gave it away to private companies i.e. Reliance. We were cheated, we should have got much more money because the market rate is ten times of what we got", said a farmer of Mohammedpur village outside Gurgaon. (Mukherji, 2007).

"The land is very fertile. Farmer used to grow wheat, rice, cotton, sugarcane, mustard and millets. We might have got the money now but how will our coming generation feed their children without land. Land is everything", said the village headman. "Water is plentiful now, but villager's fear it will be sucked away by the industries in the SEZ". Reliance has opened offices in Jhajjar, Bahadurgarh and Gurgaon to purchase the land directly from the farmers. But there is ambiguity as the bayana or agreement papers contains the name of not RIL but Nariman Point Company whose authorized signatory is on Rajeev Aggrawal. What if something goes wrong? Whom do we sue! Ask the farmers. (Mukherji, 2007).

Satpal, a youth of Mundakhera village who works in Delhi, says his family has 12 acres of good agricultural land. Asked whether they are considering selling the land, he says firmly, "We do not intend to give away the land. Let us see what happens when the state government comes to us". (Mukherji, 2007).

Praveen, a youth who himself is not engaged in farming activities, says he will not give his land to Reliance, but the state government has the power to take it over. He adds that if opposition parties decide to take up the issue and mobilize people here in protest against the acquisition move, people will certainly extend their support. At the time of land transferring in Nandigram SEZs in West Bengal (150 kilometers from Kolkata) in January and March 2007, which posed a substantial threat to the success of SEZs in India.⁴ The West Bengal government was working with an Indonesian foreign investor, the Salim group, to setup a petrochemical SEZ in Nandigram. Local people were informed by the use of force to evict people from their places of residence and agricultural livelihood. Political forces to the extreme left such as the Maoists and the more moderate Trinamool Congress helped to organize a social movement under the banner of Bhoomi Ucched Pratirodh Committee to prevent the setting up as the SEZ. The

congress party, which faced criticism on a variety of development issues from its coalition ally, did not lose this opportunity to project this lapse in the commitment to the rural poor. The situation in Nandigram continued to be tense till central forces were deployed to ease the situation. Land acquisition in Nandigram may have been affected by the power of absentee Landlords, whose interests coincided with the political opposition groups in the area. Land acquisition and SEZs earned a bad name after these incidents and the central government needed to recalibrate its policies on land acquisition. Chief Minister Buddhadeb Bhattacharya has reassured the people of Nandigram in late December 2007, that there will be no SEZ in Nandigram and that the violence caused due to land acquisition is deeply regretted and of the issue like.⁵ Janadesh 2007, the long March of the 25,000 landless and tribal people from Gwalior in Madhya Pradesh to New Delhi in October 2007, has raised the issue of Land Reforms and access to common property resources, especially among the tribal and disadvantaged people. It has led to the setting up of the National Land Reforms Council with the Prime Minister as Chairman. Inequitable distribution of land and natural resources and attention to marginalized sections as part of relief and rehabilitation policy has gained attention as a result of this non-violent struggle initiated by a Gandhian non-governmental organization called Ekta Parishad Council of Unity and aftermath of violence in Nandigram, SEZ produced a freeze on "in principle" SEZ approvals between January and May 2007.⁶ (Mukherji, 2007).

The question of displacement of farming communities to acquire land for industrialization has assumed great political importance, primarily because of the strong resistance offered by these communities in Ghaziabad in Uttar Pradesh and the SEZ at Nandigram. Land acquisition has become a prime objective of the state governments, as they climb over each other to seek the graces of global capital.⁷ The peasants are resisting such virtual eviction in many places, but the state governments are using or threatening to use a colonial land acquisition Act. Which allows the government to acquire for public purpose?⁸ Any land on payment of "compensation" even though the owner may not be willing to part with the plot. The acquired land is then handed over to the enterprisers at a subsidized rate. That is compensation that is given to the peasants.

This is just a modest beginning of new phase of capitalist expansion. In this policy argue the compensation being offered is not "adequate". That those who are not land owners but depend on agriculture for their livelihood are not compensated; that agricultural production will go down as the proposed SEZs or industrial estates are largely located on prime agriculture land. The recent spate of state violence against farmers to force them of their land in order to hand it over to global capital for real estate business or for setting up industrial enterprises.⁹

Marx quotes Bacon on an Act of Henry VII, promulgated in 1533 and comments on it. The device was profound and admirable, in making firms and houses of husbandry of a standard; that is maintained with such a proportion of land unto them as may breed a subject to live in convenient plenty, and no servile condition, and to keep the plough in the hands of the owners and not mere hirelings what the capitalist system demanded was on the other hand, a degraded and almost servile condition of the mass of people, and the transformation of them into mercenaries and of their means of labour in to capital [Marx 1954, p 674]. The features of agricultural land are to produce crops. That is why when the government takes over agricultural land for construction of industry or amusement parks the peasants' oppose such moves. Modern economic growth generates refugees of development by constructing industry or housing resorts for the rich on agricultural land; by the loss of fertility caused by modern farming that cannot be replenished; by the loss of occupation of the fisherman caused by the discharge of chemical effluents into water bodies, by displacement of forest dwellers and agriculturists on account of construction of large dams. The displaced migrants crowd cities in search of livelihood. All metros face such problems.

SEZs vs. Land Issues -Experiences and Evidences

In the following description and the development of local periphery and other impacts of SEZs and being provided:

a) Dadri SEZ in Uttar Pradesh

The Reliance Energy has plans to build the world's largest gas based power plant of 3500 MW in Dadri, in Ghaziabad. The investment outlay is more than Rs. 10,000 crore . However the real investment is the 2500 acres of land in the most fertile region. At the launch of the project on February 22, 2004, the government had announced that rate

given to the farmers for the acquired land would be Rs. 350 per sq. mt. while the prices in the market around was 13,500 per sq. mt. Further, The government of UP had waived off all the stamps fees and other related costs for buying the land for Reliance, along with the subsidy in which the Reliance would pay only 40% of the costs and government would pay the rest. Land in Dadri (Delhi) is worth Rs. 13,500 per sq. mt. whereas farmers are being offered only Rs. 120 per sq. mt. Further the power project only needs 700 acres, but 2500 acres have been acquired because of high real estate value. And finally no legal procedure has been followed in acquiring the land. (Tyagi, 2007).

b) HSIDC SEZ in Jhajjar – Gurgaon

One of the first laws passed by the Congress led Bhupinder Singh Hooda government was the Haryana Special Economic Zone Act. and thus came into existence one of the biggest SEZs of the country in Haryana. This multi-product Delhi-Jaipur Highways. It is being jointly setup by Reliance Ventures, a wholly owned Infrastructure Development Corporation, in a 90:10 ownership basis between the former and the later. Reliance claims it to be of the standards of Dubai and Singapore. According to the RIL chairman, the SEZ would come near national Highway No. 8 in Gurgaon and extend up to Jhajjar district, adjacent to proposed Kundli Manesar – Palwal Express Highway. The government had acquired 1395 acres of land near Garhi – Harsaru in Gurgaon district and on 19 June, 2006, it has transferred this land to the joint venture company. This land would in open market cost around 10 crore per acre, and the SEZ has got it for undisclosed prices, which are bound to be very low, as state is also partner in the SEZ. So it has already got the land worth 13950 crore for throwaway price / free and even if it sold, it has a straight profit of 8756.9 crore from the deal without even starting any business there. But as it is mentioned earlier the state is hand in glove with the corporation in this case, the land for a long time was surprisingly not bought by Reliance Ventures but by a company based in Nariman Point known as Central Commercial Private Limited, because the Reliance – HSIDC company was not registered till then, it was only by mid of October that the company came into existence and then all the land was transferred to Reliance Ventures, so even if there was no company formed there even after knowing it kept silent on this issue. What is interesting in this context is that before the project, like the Reliance SEZ in Haryana had even come up for approval before the

BoA, the state government has already offered Reliance 25,000 acres (10,000 hectares) and even acquired some land. So what validity of BoA procedures has when a SEZ promoter starts functioning without formal approval? In speculation of much higher prices a lot of people are not selling all their land, they are just selling a part of it and keeping the rest for the further, so the company is buying land in small pockets over the whole stretch of 25,000 acres and thus killing any possibility of a people's resistance, as they will never get united and there is already a psychological victory of the company as a lot of land has been bought. Then there is a clause in the SEZ Act that to get a contiguous area, the state might use its power for acquiring land. The people who are selling the land are told that the area having "abadi", i.e. population will not be touched. So that they don't have a fear of displacement, but is it ever possible that a contiguous area of 25,000 acres is acquired without displacing any "abadi"? Another aspect was regarding the compensation paid. It is paid to the owner of the land, while the Land Acquisition Act mentions "person affected" should be paid the compensation. Thus the agricultural labourer who would be badly affected by it, would not get a penny in lieu of snatching away their livelihood and would be most vulnerable group, if we see the state's statistics 52% of the population is involved in agriculture – 36.34% are cultivators and 15.22% are agricultural labourers and they are much more in this region accounting for at least 50% of the population. There is a common myth that the landless farmers will not be affected in terms of livelihood, as new industries are coming in the SEZ which would provide more and more options of livelihoods. But the people are dislocated from their own bases from the SEZ from where the access to the SEZ might be difficult. And the kind of livelihood options created out of the capital – intensive industries of an SEZ will not match with the skills of the local labours. (Tyagi, 2007).

c) SEZ at Kancheepuram

Kancheepuram, Tamil Nadu, is vital production bases of international industrial groups like; Ford, Hyundai and Sant Gobin. The district of Kancheepuram has got many benefits. It is in proximity to the International airport and two seaports of Chennai and Ennor and road connectivity through the East coast road and the upcoming upgrade NH 4 and 45. It has also no dearth of talented skilled manpower being in metros. Mahindra World City is corporate India's first Special Economic Zone that has been approved for

three sectors – specific SEZs, IT (Services & Manufacturing) Apparel & Fashion Accessories and Auto Ancillaries. The Mahindra World City is just 30 minutes away from Chennai. International airport has been established in prime agricultural land which is surrounded by small hills and rivers. The Mahindra's have established a 'real estate' SEZ by which they will sell out the property acquired from the farmers to other companies for establishing their commercial and industrial units at a price which is 10 – 20 times more than what they have given to the farmers. (Tyagi, 2007).

d) Posco SEZ

In the past three years, the Orissa government has signed more than 40 MoU with companies, both domestic and foreign. On June 22nd POSCO signed an MoU with the Orissa government for construction of the world's first overseas integrative steelworks and the development of a mine at Bhubaneswar, the capital of Orissa. POSCO proposes to construct first the steelworks from 2007 to 2010 on about 4500 acres of land at Kujang tehsil near Paradip of Orissa. Out the total land only 20% is individually owned and the rest comes under government / community land. And out of this POSCO has been given prospecting licenses or direct lease for mining over a total area of about 2000 hectares. With the coming in of the company 3 panchayats – Dinkia, Nuagaon and Gadakujanga comprising of 11 village / hamlets with about 22,000 people (3500 families) will be directly affected. The estimates of those whose agricultural land would be affected are the only ones who get recognized in terms of lost livelihood. There is no estimate of those who would be indirectly affected in terms of their livelihood. These include those engaged in grazing, collection of firewood, forest produce, fishing etc. Kujang block where the plant is set to come up is also unique since it is the area where the best quality betel (pan) is grown. With the plant coming up the whole 'pan' belt would also be ruined. The livelihood of those engaged in the 'pan' cultivation which ranges from the young to the old would also be compelled to give up their livelihood. On the other hand the company is proposing to build a port at Jatadhari, which also evoked concerns of damage to the coastline and also the nesting habitat of the endangered Olive Ridley Turtle giving rise to intense opposition. It would also destroy the complex system of myriad natural creeks, nalas and waterways, to create a vast backwater of Mahanadi and its associates especially during the rainy season and floods. The POSCO project will occupy large

areas of public and private lands. The proposed plant is near the Bhitarkanika Mangrove forests (which has now got the status of a sanctuary). Apart from fears that land for the plant will encroach upon the mangroves there is also a fear that the plant will draw water from a watershed that also feeds the sanctuary. Mangroves act as natural protection against super cyclones and coastal cyclones, and destroying these forests will leave Orissa's coastline vulnerable. All this has raised the fundamental questions relating the industry – induced displacements on one hand and to the government's commitment to promote the interests of the corporation world. (Tyagi, 2007).

e) SEZs in China vs. India

The SEZ policy can thus be thought of as ushering in a third generation of economic reforms. The first two phases were dominated, respectively by efforts to liberalize the macro policy environment, and by the creation of institution for regulating a market economy phase three has a special emphasis on facilitating a global presence for India's largest private sector firms and rapidly enhancing the physical infrastructures which such firms operate.¹⁰ India's SEZ Act is different in at least three key respects from the Chinese 'model' which was said to have inspired Murasoli Maran at the beginning of this decade. First is whereas in China it was the public sector that was overwhelmingly responsible for developing the SEZs, in India this task has been assigned to the private sector. Private sector promoters of SEZs have in many cases partnered with government entities, but by far the greatest share of the investment capital is coming from the private sector. The second difference between India's SEZ policy and the internationally recognized Paradigm for SEZ development is the lack of emphasis in India on using SEZs as a mechanism for promoting under industrialized areas. India's SEZ are because of the incentives created by the policy design and the fact that they are far the most part, not initiated by government bodies- overwhelmingly located in areas that are already highly developed. Almost SEZs were approved in the vicinity of major cities. Some cities like – Ahmedabad, Chennai, Delhi, Gurgaon, Hyderabad, Kolkata, Mumbai, Manglore and Pune. This is a far cry from what took place in China.¹¹ The Ministry of Rural Development began working on a relief and rehabilitation policy, which had been discussed within the cabinet.¹² A new bill had been introduced in the parliament, which

could lead to an amendment of the LAA, 1894. Given the investment and employment opportunities that Lay ahead, the SEZ policy moved faster than government legislation.

- I. The processing area within SEZ was decided by MOCI would be 50 percent of the total SEZ area rather than 35 percent of the same, as was the case before.
- II. The Board of Approval headed by the Commerce Secretary was looking for 100 percent consent from the local people before approving SEZs. This provision was to ensure that another Nandigram type violent protest would not be repeated as a consequence of forced land acquisition by invoking the LAA of 1894.
- III. The Relief and Rehabilitation Policy (2007), enunciated by the Ministry of Rural Development, discouraged investors from acquiring land that were fertile. Displacement was to be kept at a minimum Social impact assessments based on rigorous surveys of the area and public hearing were proposed. Land acquired for one purpose should not be used for other purposes. (Mukherji, 2007)

Rehabilitation Package and Compensation

There is a consensus that no development can be accepted at the cost of social equity. Land acquisition needs total reform and rehabilitation package has to be an integral part of the Land Acquisition Act. Land owner, should get adequate compensation of their land. There is also a need to think proactively to make partnership under SEZs with such land owners to bring the social equity. Therefore, rehabilitation package needs to include continuous / ongoing sharing of income. It was heartening to note that some of the developers have offered not only employment guarantee of one person per family but certain percentage of lease rental so that land owner will continue to get benefit life long. The compensation package needs to address the issue of reinvestment of such compensation as to avoid the misuse of unexpected funds due to lack of entrepreneurship. Social study has proven that such compensation has resulted not only family disturbances and has totally ruined the families on account of spending on unnecessary / perishable luxuries. It has also widened the difference amongst the family members over the distribution of wealth some time resulted in to criminal activities and therefore, it is very

important, to make the law to prevent misuse. NGOs can play a vital role for education and helping such illiterate farmers. The compensation and rehabilitation packages announced by the concerned states lack credibility as there are thousands of families displaced by previous projects still awaiting compensation payments. In a few cases those displaced in early 1970s are yet to receive compensation. In many cases the true beneficiaries are the absentee land lords, intermediaries and faults that confront with the government agencies.

Conclusions

There are three models for rural-urban transformation which are described by Lewis, Scissors model and Public Policies. Although industry-led growth is very much possible through SEZs and EPZs but shifting of land from agriculture sector to industrial sector may be judiciously done. The shifting must take care of the interest of landowners, poor labours, displaced villagers and a mechanism be developed for involving them as a share holder in SEZs. There is hardly any reason to shift the ownership of land, in many such cases. This may also reduce legal battle and bring faster development of private industries.

To recapitulate, as a suggestion it may be also advocated that for industrial development through SEZ definitely these would be shifting of land from agriculture / rural sector to semi urban / urban sector for industrial base but the issue of concern is transfer of ownership of land from farmers to capitalists. This practice can be discouraged by making the landholders and shareholders or stakeholders in the forthcoming industry according to land proportion. This will also stop compensation based land transfer. However, landless labours may be accommodated in SEZ for employment. For rehabilitation a systematic package may be evolved in order to having a pleasant rural-urban divide. We share the opinion of Bhaduri and Patkar (2009) that it is essential to strengthen and expand these rights, especially for the poor; instead they are being violated continuously, most visibly through land acquisition by the State without their consent. The role of gram sabhas is not recognized, nor is the legal process fully and fairly followed. It is not just land but habitat after habitat, even generation's old, common property resources, such as water bodies as also tree and forest cover, that is snatched away, resulting in the poor being deprived of their livelihoods and uprooted from their socio-cultural milieu. Compensation of all this loss with acceptable alternative livelihoods and a share in the benefit, rarely come true for decades, even generations. People resist the resultant trauma and fight for survival with right to life and livelihood within our constitutional framework.

We share the second opinion also the support these resistances against land acquisition without people's consent, we ask for a referendum of the people involved, proper

rehabilitation and resettlement to correct the wrong headed policies of successive governments irrespective of the colour of the government that indulges in it. The effect of taking the people's view on land acquisition would directly influence the pattern of industrialization, making it non-displacing or least displacing and truly employment generating, i.e., benefiting the local communities who would be the investors of land and all natural resources as against the others who invest non-productive monetary resources. Moreover, this would also strengthen the democratic rights and participatory role of the people in planning development and community management.

Statewise Distribution of SEZs in India

State	Formal approvals	In-principle approvals	Notified SEZs
Andhra Pradesh	101	3	67
Chandigarh	2		2
Chattisgarh	1	2	
Delhi	1		
Dadra & Nagar Haveli	4		
Goa	7		3
Gujarat	50	11	29
Haryana	46	17	29
Himachal Pradesh		3	
Jharkhand	1		1
Karnataka	50	9	27
Kerala	21	1	9
Madhya Pradesh	14	6	5
Maharashtra	109	35	51
Nagaland	2		
Orissa	10	3	5
Pondicherry	1	1	
Punjab	10	7	2
Rajasthan	8	11	7
Tamil Nadu	69	17	49
Uttar Pradesh	34	5	16
Uttarakhand	3	-	2
West Bengal	24	13	11
GRAND TOTAL	568	144	315

Source – www.sezindia.nic.in

Notes

- 1 Business Today, Special Annual Issue, 2007 from fighting for industrial licences to testing the fruits of liberalization, India Inc. has come a long way, BK Birla tells.
- 2 Taken from the introduction to Special Economic Zones in India. <http://www.sezindia.nic.in/html/about.html> last viewed on June 2009.
- 3 Times of India, Farmers tabs RIL to Court over SEZ land acquisition, 11 November 2006, p – 15;
- 4 SG Vombatkere, Special Economic Zones – Neo – Zamindari Zones ? In: Mainstream, 9th December 2006; 9. In the same issue, there is an appeal with a demand for 'a national moratorium on all acquisition and displacement till a national consensus is arrived at'. The appeal continues to demand 'a national policy for over housing the land acquisition, SEZ and related Acts and for providing an effective blueprint to protect the interests and concerns of all the affected persons', it is interalia signed by a former well known Supreme Court Judge, Justice VR Krishna Iyer and many professors of eminence such as Rani Kathari and other public persons (p 5).
- 5 Other sites such as Kolinganagar (Orissa), Kakinada (Andhra Pradesh) and Nandagudi in Karnataka also witnessed protests. It was Nandigram that brought the issue of land acquisition to national attention.
- 6 In principle approval for SEZ are accorded by the Department of Commerce for new and viable projects that have not secured the land. "Formal approvals" are however, accorded after the applicant is in possession of the land required for SEZ. In the last stage, SEZ are notified after receipt of land details and verification reports from the Development Commissioners of the SEZs.
- 7 By the term "Global Capital" we refer to capital that has crossed a certain threshold, in terms of size, to acquire the passport to global mobility. The significance of this categorical separation will become obvious as we go along. This type of capital is not geocentric in either source or area of investment. It has therefore little or no national allegiance.
- 8 The government of West Bengal has used this Act. to acquire land that will be handed over to the Tatas for construction of a small car factory. This has been interpreted as a public purpose because it will provide employment to the people of the state. Even if one does not contest the veracity of this highly improbable claim, one can still ask how the employment of workers by a profitable enterprise in order to enhance its profits can be termed as a deed with a public or social purpose.
- 9 It will be impossible to prevent land to be handed over to capital for industrial ventures from being transformed in to real states if it is more profitable. According to the projections of Merrill Lynch, the Indian realty sector will grow from \$ 12 billion in 2005 to \$ 90 billion in 2015. ("Land Grab and Development Fraud in India", Analytical Monthly Review, editorial, September 2006.)
- 10 Second generation reform is such term sometimes used to denote in general, all the reform items leftover from the first decade or decade and a half of reform. More especially, it can take on one of three meanings:
 - a. The politically difficult reforms that have been sidestepped (labour reform, through fiscal reform, privatization).

- b. Reforms that will be more inclusive, reducing the disparities that have given reform an anti-poor image; or
- c. Reforms to institutions of governance to take the process of continuous policy change more transparent, predictable and efficient. See Rob Jenkins and Sunil Khilnani (eds), *The Politics of India's. Next generation of Economic Reforms*, Special Issue on India Review (Washington DC), vol. 3, No. 2, November 2004.

¹¹ The four original SEZs in China were Shenzoben, Shantou, Zhuhai and Xiamen. For accessible overviews of the Chinese experience with SEZs, see George J, Crane, *The Political Economy of China's Special Economic Zones* (Armonk NY: ME Sharpe, 1990) and YC Jao and CK Leung (eds), *China's Special Economic Zones: Policies, problems and prospects* (Hong Kong: Oxford University Press, 1986). The third way in which India's SEZs vary from the Chinese model has been in terms of size. The SEZ Act 2005 specifies extremely low minimum size requirement in order to establish an SEZ. The minimum area requirement for 'multiproduct' (i.e. non sector specific) SEZs is 1000 hectares. Sector specific SEZs have a minimum area requirement of 100 hectares, with the exception of those devoted to information Technology and IT enhanced services, which are permitted to be as small as 10 hectares [SEZ authority, Ministry of Commerce & Industry, Government of India. Available at sezindia.nic.in]

¹² The Indian cabinet is a group of influential ministers who make important decision for the country headed by the Prime Minister.

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SUSTAINABLE RURAL URBAN FRINGE : NATURE CAUSES AND SOLUTIONS

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Sustainable Rural Urban Fringe: Nature Causes and Solutions

by

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Abstract

Economy (development) Vs Ecology (environment protection) has been a source of discussion and debate for a long time. Since the significance of both in sustainable development can not be undermined, there are various instances where due to gross negligence on the part of planners and governance one has attained importance at the expense of the other. Rural Urban fringe is one such mismanaged grey area which has its implications not only on economy and ecology, but on the lives of millions of people who undergo not only economic, political and cultural shocks but witness major emotional and psychosomatic problems as well.

The state of Uttar Pradesh is most prominent in terms of geographical, political, cultural and social characteristic features. The state has a huge size of land mass, large number of population with distinct demographic dividend, a rich and diverse culture, a vast plateau of fertile soil belt, home for millions of people is witnessing a transition of a different kind.

The state has lagged behind in having decent industrialization, while its agriculture is also not a cost effective viable occupation. Land reforms of the type required to promote productivity are not in place, sub divisions and fragmentations of land has made agriculture an unviable occupation. The rapid transition of the self sufficient village culture to an unorganized urbanization within the state has taken its toll on the spurring up of unplanned, mismanaged municipalities with little basic or no civic amenities in terms of the basic infrastructure.

The ancient cities and centers of culture and civilizations have lost to rude urban expansions, creating a chaos for policy planners in implementing regularizations

The present study intends to observe these and other significant aspect and suggest measures that could reduce the rural urban fringe for sustainable development of Uttar Pradesh.

INTRODUCTION

The concept of sustainability emphasizes that the process of consumption patterns should be such that it not only fulfills the needs of the present but preserves the resources for the future generations to use. Sustainable rural urban fringe is one such important element in the process of utilization of the most prominent, fixed and essential resource- land. Almost all human activities depend on land- agricultural land, residential land, industrial land, waterways, common lands, etc.

Land use is the ability of human beings to manage their eco-system in order to satisfy some of their needs. Ecology versus economy has attained a plethora of debate and discussion in the academic circles. While the significance of economic development cannot be undermined, the cost of degradation of ecology is extremely high and it destroys the very concept of sustainability. Ecology or protection of environment even at any cost for the present must be undertaken as otherwise it might as well destroy the survival of the present leave apart the protection of the future.

The history of environment studies of the present times reveals that never before in the earlier centuries has ecology been so very much abused or misused and it is one of the most important reasons why at world forums the debate on environmental protection issues has attained so much of significance.

The rural-urban fringe is one such important issue of environmental degradation where there is a forward movement [backward movement] of land encroachment. The rural-urban land fringe in India has both the directions and while it is very clear that the urban expansion into the rural areas is referred to as land fringe, the movement from rural to urban is often termed as creation of hinter lands.

The history of rural-urban land fringe in India has its evolution with the industrialization in India since independence after the second five year plan.

When India attained independence in 1947, nearly 70% of its then population was predominantly living in the rural areas; agriculture being the most predominant occupation. The villages of India were basically self sufficient in the sense that the demands of the indigenous rural

population were very few and were satisfied through supply of goods and services produced within the villages themselves.

The village culture was independent, artisans used their indigenous skills in the production of crafts and products through generations, utilized mostly within the village and their fewer exchanges via barter were also satisfied within peripheral limits. This led Pundit Jawaharlal Nehru to state that 'India lives in its villages'.

The attainment of independence and with it the formation of socialistic pattern of society meant that India provide magnitude of opportunities to its teeming millions. With planning and emphasis on agriculture led growth strategy during the first five year plan agriculture, land use, irrigation, land classification, land management and peripheral issues assumed significance. However our predominant village culture, the strong and powerful prevalence of the centuries old zamindari system was unprepared for this immediate socio-institutional and economic transformation. While India was able to attain food self sufficiency, it's overall rural areas were gradual to attain development.

The geographical extend of land in our country is finite and its optimal utilization is warranted. The total geographical area is 328.73 m ha and 305.8 is the reporting area for land utilization purpose. In the last forty years, net area sown is constant around 140 m ha. The net sown area however increased from 118.75 m ha in 1950-51 to 140.27 m ha in 1970-71. The area under non agricultural use also increased to 8.0% from 3.3% and the area under barren and uncultivated land has been decreased to 5.8% from 13.4% during 1950-51 to 2007-08. However, forest area has increased to 22.8% from 14.2% during the same period. The area under the non-agricultural use such as common land, hinter land, forests and unsown and uncultivated barren land and deserts form the rest of the area of our land.

The net irrigated land and gross irrigated areas have increased nearly 2 and 3 folds, from 20.85 m ha to 55.10 m ha and 22.56 m ha to 76.82 m ha respectively in the years 1950-51 to 2007-08. Due to increase in irrigation, introduction of new crops and early maturing varieties cropping density increased from 111% in 1950 -51 to 137% at the moment. Consequently, gross cropped area also increased from 131.89% in 1950-51 to over 190% at present. The conversion of good

quality of land from non-agriculture to agriculture purposes have compensated for increasing cultivation and agricultural production has marginally increased.

The conversion of good quality of agriculture to other non agriculture purpose has been compensated by increasing cultivation in forest areas and other inhospitable terrain which were unused till now. It is a fact that a large area under very poor quality marginal land is being cultivated in large parts of central and north east India. As a matter of fact if the net sown area has not shown much decrease it is possibly because of the marginal lands are being brought under the plough.

Presently the research focus is on the dynamics of land use. Land represents an important resource for the economic life of a majority of people in the world. The way people handle and use land resource is decisive for their social and economic well-being as well as for the sustained quality of land resources. Land use however is not only a realm of those directly using it; it is exposed to a part of the wider reality of social and economic development and change. Land use therefore is a highly dynamic process. This implies that policy discussion and development planning need to be based on a sound understanding of these dynamics.

If, in the future, human requirements are to be met in a sustainable manner, it is essential to resolve these conflicts now and move towards more effective and efficient use of land and natural resources. Integrated physical land-use planning and management are an eminent method of achieving this. By examining all uses of land in an integrated manner, it makes it possible to minimize conflicts, to make the most efficient trade-offs and to link social and economic development with environmental protection and enhancement, thus helping to achieve the objectives of sustainable development. The essence of the integrated approach finds expression in the coordination of the sectoral planning and management activities concerned with the various aspects of land use and land resources. Land resources are used for a variety of purposes which interact and may compete with one another, therefore, it is desirable to plan and manage all uses in an integrated manner. Integration should take place at two levels, considering, on the one hand, all environmental, social and economic factors and on the other, all environmental and resource components together (i.e., air, water, biota, land geological and natural resources). Integrated consideration facilitates appropriate choices and trade-offs, thus maximizing sustainable productivity and use.

CASE FOR LAND USE POLICY

It is well established fact that 80% of the world's population lives in countries where agriculture and land are primary sources of earning and livelihood. In these countries the rising trend of land degradation is a distinct feature. Deforestation, inadequate land use, unsuitable farming and grazing practices, demographic pressure, lack of appropriate and improved technologies, poor markets and other legal institutional faults are the main cause of this. And this is, indeed, a concern for all in terms of food security and sustainable development.

Conflict over land use has become inevitable. The rise in population has puts more pressure on arable land, grazing, forestry, wild life, tourism and urban development. It is estimated that the population dependent on land for food, fuel and employment will double within next 50 years. Most of the land available to meet current and future food requirements is already in production, any further expansion must necessarily involve fragile and marginal lands. This is particularly so in developing countries where population growth is high, poverty is endemic and existing institutional capacity for land management is weak. In spite of this knowledge the question is why land use planning is not a reality even now.

The World economy which is presently dictated by urbanization, industrialization and other development activities, is outstripping the land capability. As a result, serious concerns of land and environmental degradation and declining productivity growth rate have come into prominence the world over, in recent years. Approximately 5-7 million hectares of usable lands are lost every year through land degradation, and 2 billion ha of land are already degraded due to various causes. The relative influence of soil degradation is estimated at 39% in Asia, 25% in Africa, 12% in South America, 11% in Europe and 5% in Oceania. India plagued with high population and poverty, rank very high among the developing countries. Half a billion people in developing countries live in arid regions with no access to irrigation systems. Another 400 million are living on land with soils unsuitable for agriculture, 200 million in slope-dominated regions, and more than 130 million in fragile forest ecosystems. These areas covering an estimated 73 percent of Earth's land surface face significant problems for agriculture investment

and have limited ability to sustain growing populations. Sensitive to land use patterns, they are particularly vulnerable to degradation, erosion, floods, and landslides.

One-quarter of the people in developing countries, 1.3 billion in all survive on fragile lands, area that present significant constraints for intensive agriculture and where the people's links to the land are critical for the sustainability of communities, pastures, forest and other natural resources. The least productive area should have been abandoned first, as people migrate out to better opportunities. While some people have left, many remain behind and others are migrating in (the estimated population on fragile lands has doubled since 1950) Improving their livelihoods is essential for meeting many of the Millennium Development Goals for the coming decades.

People living on fragile lands are vulnerable but have a modest portfolio of assets that can help bring them out of poverty: the land, traditional social capital, human capital, and indigenous knowledge and know-how. However, the potential productivity of even these assets has not been fully developed by either local or national institution. Living in disperse settlement and working in the informal or subsistence economy, people on the rural periphery are largely invisible to decision makers. As a result, institutions have not been picking up social and environmental distress signals from the periphery-nor have these institutions been able to balance interests in setting their development agendas. For the past 50 years the governments and private sector have focused the bulk of their attention and agricultural spending on the development of lands with commercial potential even though much of the rural population remains on marginal land.

Population pressure on arable land in Asia is considerable and growing. Severe land degradation affects some 35 percent of productive land. The result has been to put more population pressure on the Inner Asian dry lands. Most affected are Afghanistan, China, India, and Pakistan and Inner Asia's high steppe, the largest remaining pastureland in the world, which includes Mongolia, northwestern China, and parts of Siberia. Over thousands of years, these grasslands have been home to nomadic herders of horses, camels, goats, sheep, and cattle, practicing elaborate systems of seasonal pasture rotation across wide stretches of land in response to climate fluctuation

Then there is a larger issue which humanity is confronting today. It is a self-generated environmental crisis. The patterns and ever accelerating pace of economic development has been

in conflict with the environment for quite some time now, and if this trend continues, the cumulative effects of population increase, resource depletion and degradation of the environment will take a heavy toll. Statistics accumulated over the years show clearly deterioration in global resources. Our air, soil and water are getting polluted; there is ozone depletion in the upper part of the atmosphere while accumulation in the lower part is leading to global warming. Something must be done urgently and on a large enough scale to arrest this deterioration. There is need for an agreed agenda of action promoting an all-encompassing concept of sustained development in order to ensure that the needs of the present generation are met without compromising the ability of the future generations to meet their own needs. This implies a commitment not to damage or destroy the basic life support system of our planet 'Earth', namely, the air, water, the soil and the biological system. Development must be economically sustainable to ensure a continuous flow of goods and services derived from the earth's natural resources to all generation.

Water is also one of the most critical of natural resources. This precious gift of nature is the essence of the life and the cradle of life on our planet. Throughout the wide spectrum of historical experience, we find that civilization were born and flourished around water sources. Water crises have precipitated social and political turmoil throughout human history; and for good reason. Life cannot be sustained without water. Moreover it is a crucial input for development.

There is a growing water crisis today. One can understand the scarcity of water where nature has withheld its bounties, but there should be none as a result of mismanagement of the available. Water engineers and scientists are confronted with challenges of sustainable development and have the responsibility to meet these challenges both at the macro-level of overall demand and supply and at the micro-level by designing, operating and maintaining water resources and water projects in a manner consistent with the objective of sustainability.

Indian perspective on land use and rural urban land fringes:

Indian economy is predominantly an agricultural economy, even in 2009. Nearly two thirds of its population is directly or indirectly associated with agriculture. Following the successful completion of the first Five Year Plan, planners in India diverted their attention towards industrialization of the economy. This had important reasons from generating higher growth

rates to creating employment opportunities for its masses to producing goods and services in large scale and more than most to prove the emergence of India in the world arena as an important industrially developing nation.

The process of industrialization with great emphasis on basic heavy and capital goods public sector enterprises in certain parts of the country due to reasons more political and institutional rather than economic and viable resource availability options created regional disparities, besides creation of haphazard industrial clusters. This in turn led to huge migration of rural population into unplanned and unorganized industrial areas. The culmination of which has been creation of many crowded and unmanageable industrial, residential settlements with unlimited peripheral problems,

India during the Second Five Year Plan(1956-1961) generated output and created employment opportunities to a number of people which led to movement of labour force towards the new towns and emerging urban areas. There was substantial migration of population to some of the prominent cities such as Bombay, Calcutta, Delhi and Madras and over the decades, this migration and movement hassled to creation of hundreds of towns and cities.

India, with only 2.3% of world's total land area is supporting 18% and 15% of world's human and livestock population, respectively. The per capita arable land in the country is only 0.15 ha and it is expected to come down to 0.08 ha by 2025. The increasing pressure on the scarce soil resource and unscientific practices adopted for short-term gains to meet the mounting multiple demands has led to over exploitation and degradation of these resources. Long-term sustained productivity is being ignored for short term gains.

It is a paradoxical situation that on the one hand more production is required from the scarce soil resources for meeting the demand of ever expanding population, on the other hand vast areas are either going out of cultivation or showing alarming reduction in productivity due to land degradation at an alarming rate. Therefore, reclamation of the degraded lands and prevention of any further degradation of land, are among the serious national challenges.

As per the recent estimates of National Bureau of Soil Survey and Land Use Planning, out of a total of 146.5 million ha of degraded land, water erosion affects 103.9 million ha, wind erosion

13.1 million ha physical deterioration 12.23 million ha, chemical deterioration 10.3 million ha and deterioration due to other complex problems is 7.2 million ha.

On the other hand the water resources in the country are unevenly distributed, spatially and temporarily. Rainfall is erratic and most of the rain falls in four months of the monsoon season. The problem is compounded by the unnecessary/inefficient use of water, both surface and ground water. This has led to water logging and soil salinity: the ground water table has fallen in many areas and the numbers of dark blocks/areas have increased. The challenge before us is how to conserve and relocate rainwater, so that four months rainwater can be utilized for twelve month for multiple uses. Rainwater harvesting is what will push agricultural productivity, create employment and hence eradicate poverty.

Since land is a state subject, the Centrally Sponsored scheme on Strengthening of State land use Board [SLUB] was launched in 1983. From November 2000, onwards, this scheme is being implemented in the states through the Macro Management of Agriculture.

All the states have constituted SLUB under the chairmanship of Chief Ministers. However any serious discussion on land use is avoided because of the conflicting interests and decisive action are difficult to arrive at which has to a very great extent hampered the utilization of land for productive purposes.

India still does not have good National Land Use Policy. Even though some policy guidelines prepared way back in 1983 under the chairmanship of the Prime minister has taken up certain issues there exists substantial scope for better utilization of land for productive purposes

MAIN OBJECTIVES OF LAND USE POLICY

- Resource use efficiency to meet the growing consumption needs.
- To restore productivity of degraded lands
- Suitable institutional mechanism for scientific management, conservation & development of land resources.
- Plan and resource linkages for land related programme
- Expansion of effective forest cover to restore ecological balance
- Conjunctive use of surface and ground water resources.

- Preservation of prime agricultural land
- Translate policies through plan efforts into action.
- Greater awareness through education, training, extension programmes

Land Use Planning as a tool for sectoral allotment/ utilization of land has been attempted in India only in urban areas through a Master plan document. The National Bureau of Soil Survey and Land Use Planning have attempted the soil based land use planning at watershed, farm and village levels. Attempts have been made to highlight the soil properties at district level through a suggestive soil based crop alternatives popularly called Suggested land use maps.

The time has come to take a hard look in an integrated perspective land use planning exercises at district levels to fulfill the aspirations of the stake holders. The problem is that any suggested land use plan will have no sanctity in the absence of a policy and legislative framework.

The methodology for each of these is different but the ultimate aim is to evaluate the land and present land use and select those combinations that best achieve the desired goals in a diverse country like India, the land use systems for multifunctional agriculture shall be varied, best suited to local agro-ecological conditions but ultimately aiming for overall rural development. Integrated farming Systems that contribute to poverty alleviation and providing a stronger local economy would also be the part of the plan.

In addition to the goal of rural development, multifunctional agriculture can also be used as a strategy to increase agriculture production through cultivation in the productive soils of the urban fringes. A system of multi-functional land use would thus also provide an opportunity for promoting agriculture in an around the city. The integration of agriculture in the process of urban planning linked through green belt requirement of the city can also provide the much needed solution to the problems of loss of good quality agriculture land through urban encroachment.

All our Five Year Plans emphasized the need for efficient use of land water and other natural resources for accelerated as well as sustainable economic development. Nevertheless, the problems of land degradation ground water depletion and environmental pollution have assumed alarming proportion since many areas.

Hence it is felt the need for serious National Debate on how to address various issues related to land use planning in a country where pressure on land is 4-6 times more as compared to world average. Here it is worth mentioning that we have 17% population and 11% livestock on only 2.3% land of the world.

We need to keep in mind that land use patterns will be largely governed by market forces. However keeping in view the need for conservation of land water and other natural resources for sustainable development, food and livelihood security suitable policy, direction and planned intervention from time to time would be necessary.

Uttar Pradesh and rural urban land Fringes:

Uttar Pradesh is a state located in the northern part of India. With a population of over 190 million people, it is India's most populous state, as well as the world's most populous sub-national entity.

With an area of 93,933 sq mi (243,286 km²), Uttar Pradesh covers a large part of the highly fertile and densely populated upper Gangetic plain. It shares an international border with Nepal to the north along with the Indian state of Uttarakhand, Himachal Pradesh to the north-west, Haryana, Delhi and Rajasthan on the west, Madhya Pradesh on the south, Chhattisgarh and Jharkhand on the south east and Bihar on the east.

The state can be divided into two distinct hypsographical regions: -

The larger *Gangetic Plain* region is in the north: it includes the Ganga-Yamuna Doab, the Ghaghra plains, the Ganga plains and the Terai. It has highly fertile alluvial soils and flat topography - (slope 2 m/km) - broken by numerous ponds, lakes and rivers.

The smaller *Vindhya Hills and Plateau* region is in the south: it is characterized by hard rock strata and varied topography of hills, plains, valleys and plateau; limited availability of water makes the region relatively arid.

Constituent regions: The state comprises several distinct regions: -

- The Doab region which runs along UP's western border from north to south; this region is further divided into three zones:
 - The Upper Doab in the north-west,
 - The Middle Doab in the west,
 - including the Braj -bhumi in the trans-yamuna area,
 - The Lower Doab in the south-centre,
- The Rohilkhand region in the north;
- The Awadh (or Oudh), the historic country of Kosalas in the centre;
- The northern parts of Bundelkhand in the south;
- The northern parts of Baghelkhand in the south-east; and
- The southwestern part of the Bhojpur country in the east, commonly called Purvanchal ("Eastern Province").

The state of Uttar Pradesh is a true representation of India's Unity in Diversity in all aspects. Historically and culturally it is an enriched state with the pomp, glory and splendour of the prominent rulers such as Mughals, Rohillas, Bundellas and the Awadh. It has distinct demographic dividend with 40% of its present population is in the age group of 15 to 45 years. The state is house to a number of educational and research centres of national repute. Political vulnerability over the years has not allowed the state to develop and flourish as an industrial state and hence has witnessed a large migration of its productive, hardworking and efficient manpower.

The administrative and legislative capital of Uttar Pradesh is Lucknow and the financial and industrial capital is Kanpur. The state's high court is based at Allahabad. It is home to many historical cities like Varanasi and Agra. Kanpur is its largest city; other big cities are Meerut, Bareilly, Allahabad, Ghaziabad and Noida.

Administrative divisions and districts (as in 2007) : The state of Uttar Pradesh consists of seventy districts, which are grouped into eighteen divisions: -

Agra Division, Aligarh Division, Allahabad Division, Azamgarh Division, Bareilly Division, Basti Division, Chitrakoot Division, Devipatan Division, Faizabad Division, Gorakhpur

Division, Jhansi Division, Kanpur Division, Lucknow Division, Meerut Division, Mirzapur Division, Moradabad Division, Saharanpur Division and Varanasi Division.

The largest district in terms of area is Lakhimpur Kheri. The largest district in terms of population is Allahabad, followed by Kanpur Nagar (Census 2001).

Demographics : Uttar Pradesh is the most populous state in India with a population of over 190 million people as of July 1 2008. If it were a separate country, Uttar Pradesh would be the world's fifth most populous nation, next only to China, India, the United States of America and Indonesia. As of the 2001 census of India, slightly over 80% of Uttar Pradesh population is Hindu, while Muslims make up 18% of the population. The remaining population consists of Sikhs, Buddhists, Christians and Jains.

Economy : Uttar Pradesh is the second largest state economy in India after Maharashtra, contributing 8.17% to India's total GDP. Between 1999 and 2008, the economy grew only 4.4% per year, one of the lowest rates in India.

The major economic activity in the state is agriculture, in 1991, 73% of the population in the state was engaged in agriculture and 46% of the state income was accounted for by agriculture. UP has retained its prominent position in the country as a food-surplus state.

Uttar Pradesh is home to largest number of Small Scale industrial units in the country, with 12% of over 2.3 million units. But industrial output has been adversely affected by erratic power supply from the UP State Electricity Board and remains far below its full production capacity. Unavailability of adequate raw materials at competitive prices is another negative factor. Also, like in most parts of India, traders and middlemen make most of the profits while the labour class lives at subsistence level.

In spite of these, labour efficiency is higher in UP at (26) than the National Average of (25). Following are some of the important industrial hubs in the state: -

- Kanpur is the largest shoe-manufacturing centre in the country.

- NOIDA and Lucknow are among the top IT (Information Technology) destinations of the country.

- Meerut, a manufacturing centre of sports goods, sharp tools like scissors and also of gold ornaments, is regularly listed among the top tax-paying cities in the country.

Globalization as well as the Western influence through the media is impacting the Uttar Pradesh's life style, and economy is gearing itself to cater to new tastes and consumerism. A visible sign of this is seen in the elegant shopping Malls coming up in up beat localities in big cities.

In the vast fields of urban- rural relationship, fringes of the cities i.e., zones where cities are transforming tracts of rural territory within their fold has been emerging. In India, city growth is synonymous with demographic growth besides technical and social innovations. Urban fringes are becoming important characterizing unplanned squatter settlements, traffic problems, congestions, unplanned infrastructure and over-utilized existing land.

In the developing countries the rural urban fringes are a major problem unlike in the western developing nations where rural urban fringes have been created by reasons less of demographic growth than of vast official programme of slum clearance, industrial relocation and traffic management and these pressures have been further strengthened by extensive sub-urban building by individuals and speculators.

Rural-urban fringe is a zone of land on the periphery of urban area which is experiencing a process of transformation from characteristically rural modes of production, social interaction and land use to characteristically urban one. It is a zone of transition in both space and time and as parallel and complementary manifestations of the same land.

There are clear differences between rural-urban fringes and the hinterland of the city. This reflects the lack of a clear boundary between these zones as well as conceptualized inconsistencies in the literature. There are however fundamentally different both as a phenomenon and as a concept.

Due to both population growth and urbanization there will be growing demand for conversion of agricultural land to non agricultural uses. It is therefore important to develop a long term perspective plan on type of land to be allocated for urbanization/industrialization in various regions. Besides proper urban planning would reduce the extent of conversion of prime agricultural lands to non-agricultural uses.

The existing database on land use is highly inadequate. Therefore strengthening of the database, using traditional cadastral surveys, modern remote sensing techniques, GPS, GIS and computerization of land records would be necessary. In fact, the available techniques for data collection should be complementary to each other. There is a need for a strong monitoring mechanism to document the on-going land use changes either driven by market or policy or both.

Issues for Consideration for land use and rural urban land fringes:

- Achievement of desirable land use pattern through sectoral approach/Plan linkages
- Formulation of economical viable projects for each sector i.e. forests, agriculture, horticulture to translate land care into people's movement.
- Application of modern science & technology to enhance productivity.
- Preparation of Land Use Atlas.
- Generation of strong political/ administrative will.
- Computerized and updated Land Records.
- Strict laws/rules for land use conversion
- Maintaining and improving soil fertility and unit area land productivity.
- Surveys of land resources - climate, water, soils, landforms, forests, and rangelands to improve efficiency of investment.
- Need to generate systematic database on land utilization and land management practices at national, state and local levels in the country.
- Training/orientation programmes for land use practitioners.
- Publicity of success stories in case of soil conservation & better land management.
- Effective reclamation of degraded lands.
- Measures to check further degradation of land.

- Effective watershed management and reduction in disparities and regional imbalances prevalent in the State through policy interventions.
- Diversification of land use.
- Awareness generation based on local needs/environment.
- Preventive measures on adverse effects from industrial waste and effluents on good forest and cultivable land.
- Development of rural agro-based industries.
- Treating water as an economic good and not as a free commodity.
- The State Land Use Boards should be suitably strengthened with statutory powers to integrate and monitor activities of Land User Department.

CONCLUSION:

Having noted the details of the nature characteristic features and conditions of rural urban land fringes, land use patterns and policies in India and the world over with special reference to the state of Uttar Pradesh the present study reveals that there exist great scope for planners and developers to work on promoting and providing the state with decent adoptable land use policy and creation of an environmentally healthy land fringes. The need of the hour is of strong political will to pronounce and promote legislative measure to undertake land reforms, land management and better utilization techniques so that sustainable rural urban land fringes may be a part of the future generations to come.

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CHANGING SCENARIO OF PERI-URBAN LANDSCAPE AROUND BALLIA CITY

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Changing Scenario of Peri-urban Landscape around Ballia City

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Abstract

The transitional zone between a demarcated city boundary and rural areas are generally called rural-urban fringe or peri-urban area. In this area the characteristics of an urban centre and rural background are found mixed together. These extra urban expansion generally found along the highways and main road connecting to the city. This type of unplanned area creates an extra pressure on the rural resources as well as on urban centres. These areas have not any proper governing bodies as in urban centres. They are developing as haphazard patches and separated by spaces to one another. The people living in these zones have socio-cultural characteristics, which is different from those of fully urban or rural. The economic behaviours of the people have been also changing with decreasing of agricultural field. This type of agricultural loss is a threatening for agro-based economy like that in rural India. Almost all the cities in India record peri-urban areas adjacent to their boundaries. The current study envisages a case study of peri-urban areas around the Ballia city, eastern Uttar Pradesh.

In Ballia city peri-urban areas have been developed in patches, and keep a sufficient distance between two types of habitat. Consequently this results to loss of agricultural field and further encouraging different land uses which earlier not practiced and in many cases not suited too. The agricultural production has been largely to fulfil the demand of urban centres, for example preferably production of vegetables and milk by the farmers that gives better monetary returns. This helps to promote more economic dependency on Ballia city. These peri-urban areas lack any sort of urban amenities (e.g. sewage, transport and communication, potable water, community centre, administration unit, etc.) mainly due to its nearness to the corporate area of the city. In the light of these issues this paper attempts to present the changing scenarios of peri-

urban areas around Ballia city, and finally giving some suggestions for managing these problems in better way.

Introduction

Peri-urban areas are outside formal urban boundaries and urban jurisdictions which are in a process of urbanisation. As a specific and non-neutral space, a peri-urban area refers to a transition or interaction zone, where urban and rural activities are juxtaposed, and landscape features are subject to rapid modifications, inducing by human activities (Douglas, 2006: 18). Peri-urban landscape is environmentally unstable, and progressively assumes many of the characteristics of urban areas.

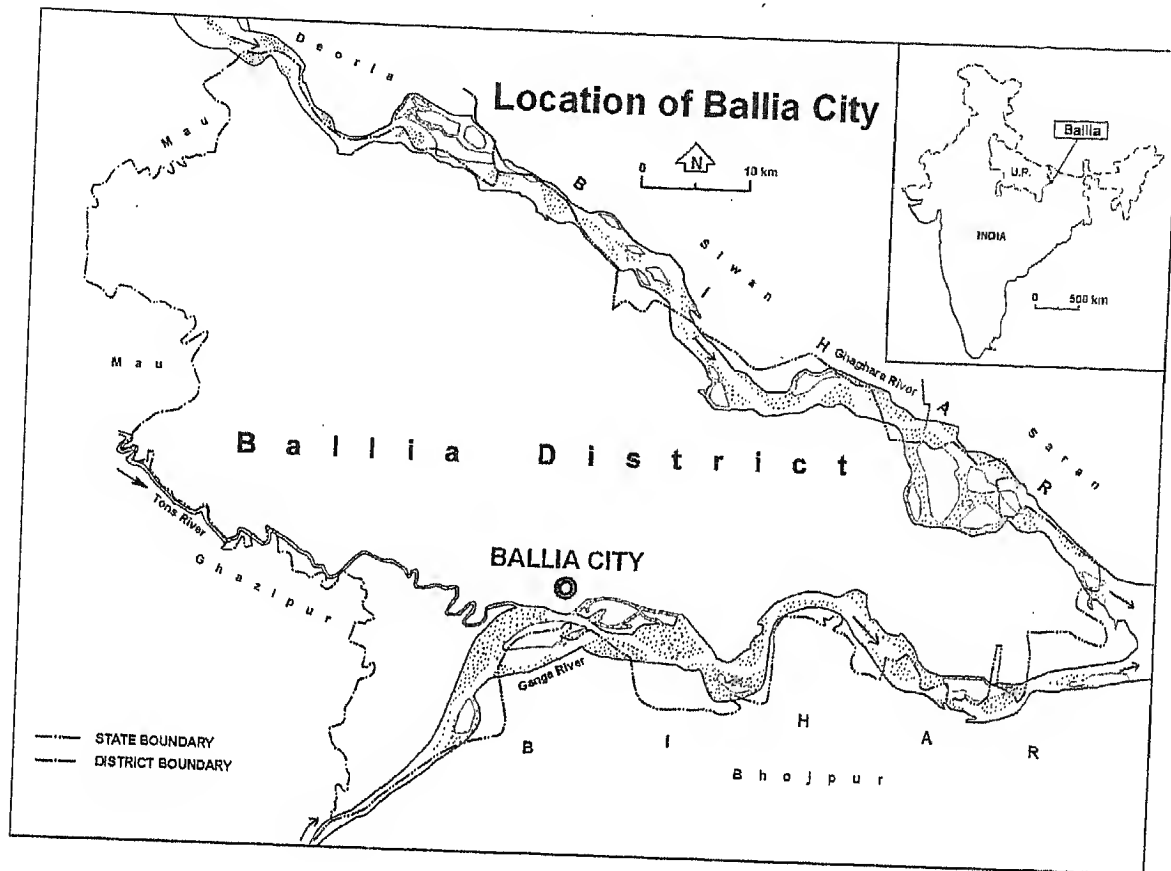
The rapid expansion of peri-urban areas presents opportunities and challenges for urban and rural activities, institutions and sustainability. No longer solely seen in spatial terms, the peri-urban landscape is increasingly recognised in terms of dynamic flows of commodities, capital, natural resources, people and pollution. Although often seen as a transition zone, peri-urban areas are expanding rather than diminishing. The complex interactions between urban land use, environmental change, and socio-economic system in urban area and in peri-urban area generate changes in peri-urban landscape. It must be assessed because rapidly changing landscape of peri-urban areas has great ecological and socio-economic importance not only for peri-urban areas but for future of urban area also.

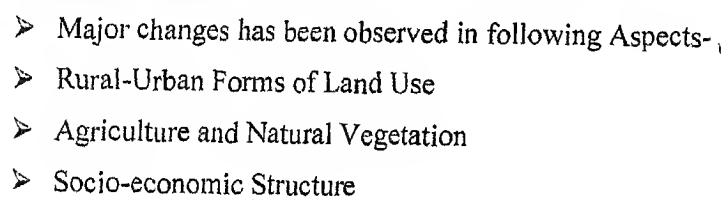
Methodology

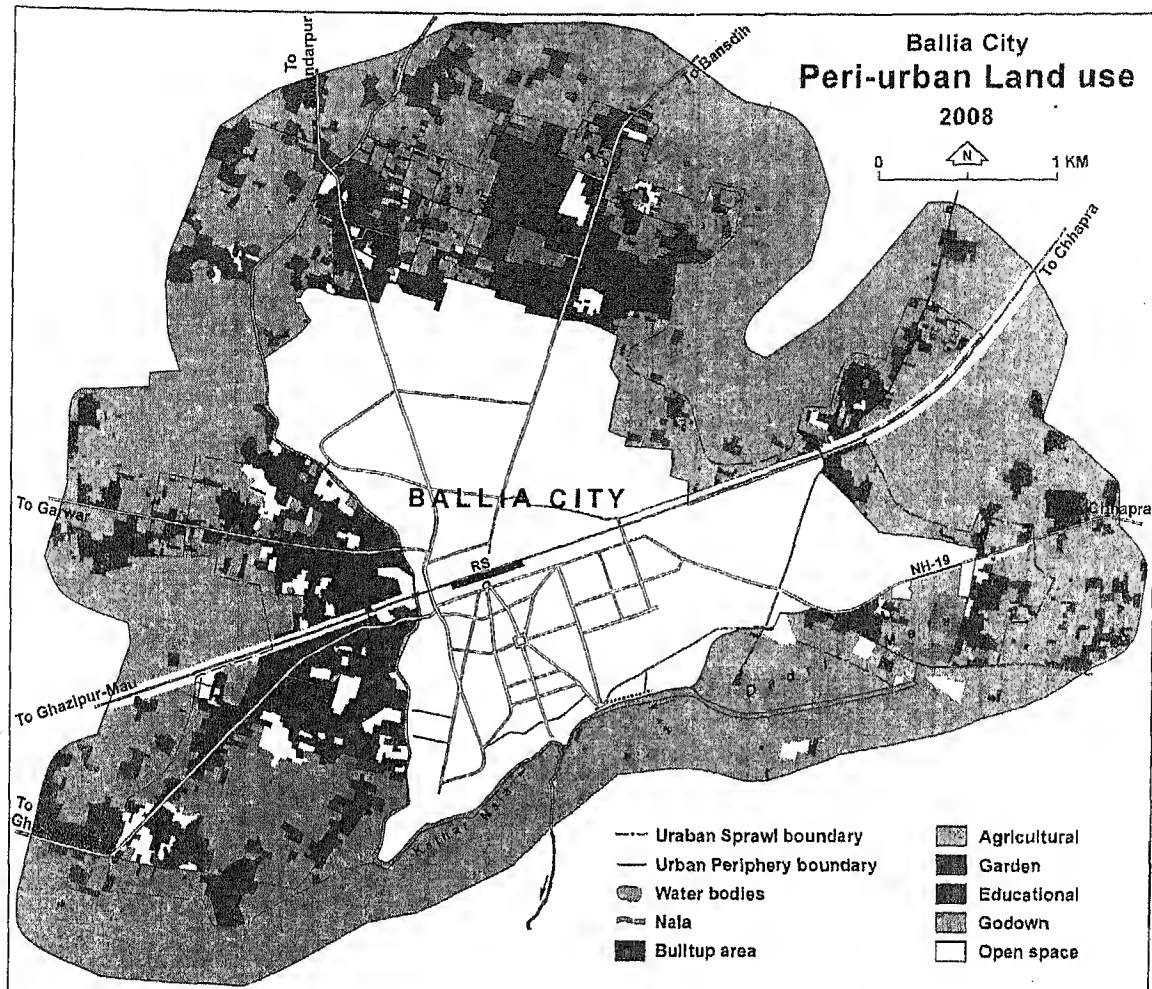
This paper is mainly based on primary data. For collection of primary data, a comprehensive field observation as well as several interviews with persons belonging to different social groups and occupations has been carried out. In peri-urban area, only boundaries of those villages have been included where some forms of urban elements have been noticed. Its boundary goes off approximately one km away from urban sprawl. Maps are prepared with the help of Google Earth imageries.

Study Area

Ballia city is located (25° 44' to 25° 46' N latitude and 84° 08' to 84° 10' E longitude) on the north bank of River Ganga and extended along both sides of Varanasi-Chhapra railway line and NH-19. It is a historical, cultural, administrative and commercial centre of Eastern Uttar Pradesh. It is located 141 km east of the Varanasi metropolitan. Total area and total population of the city is 16.11 sq. km and 101,465 persons respectively (census 2001)







Rural-urban forms and land use

In peri-urban zone, the co-existence of rural and urban forms of land use indicates two way flows of goods, capital and services between the villages and town. Over the last decades, agricultural land has been acquired for non-agricultural purpose. Most of these lands were private owned and sold by the agriculturists. High market prices of land allures land owners to sell off their land and the amount of money they get is mostly utilized in marriages, education, upgradation of less fertile fields and agricultural infrastructure, construction of houses/shops for getting rent or for self use. Conversion of agricultural land into other uses is resulting into diminishing size of land holdings and diminishing agricultural productivity. The size of land holding is decreasing due to increasing population and subsequent fragmentation of land holdings between family members. At the same time, dearth of secure source of water supply declines opportunities of any agricultural based livelihoods. Such factors have greatly affected villages namely Bahadurpur, Tikhampur, Parikhara, Parmandapur, Baheri, Jalalpur, Haibatpur, Maldepur,

and Imritpali which are located adjacent to city boundary. Baheri, Bahadurpur, Tikhampur, Jalalpur, Parikhara villages are highly and densely populated where rate of loss of agricultural land is very high. In Jamuwa, Pipra, and Sahraspali, villages rate of land use conversion is relatively low as the land is low lying against Ballia-Bairia road which enhances cost of construction. Reasons for slow development in Raghunathpur and Imritpali are mostly same as that of above mentioned villages but with less intensity. Holy Cross School in Imritpali is the best English medium school of Ballia where children from economically sound families get education due to which growth of houses and shops are expanding towards Imritpali. In eastern side, expansion of non- agricultural uses is occurring in linear way along main roads and railway line.

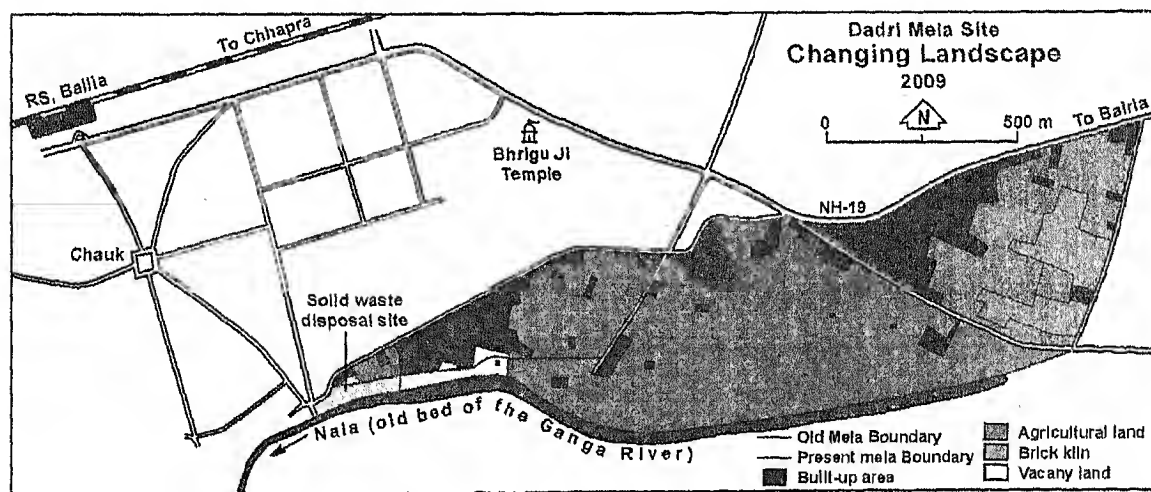
Loss of Agricultural land and Natural Vegetation due to expansion of Built-up area in
Severely Affected Villages

Village	Area in ha (approximately)
Baheri	128.64
Bahadurpur	90.31
Parnandapur	27.49
Jalalpur	25.64
Jamuwa	24.55
Tikhampur	20.50
Imritpali	12.11
Parikhara	9.16
Jirabasti	6.71
Pipra	3.20

Source: Personal survey, 2008

Bahadurpur village in north is severely affected by process of urbanization. This village possessed Polytechnic College a cinema hall and godown and warehouse. Bahadurpur is located contiguous to administrative zone of the Ballia district. A number of government employees have erected their house due to its nearness to their workplace and subsequent development of middle and high class residential colonies on agricultural lands of Bahadurpur. Tikhampur and Parikhara villages have taken place rapidly. Being in village jurisdiction, this area is devoid of any municipal taxes and laws. Presently, only about 40 percent of total agricultural land of Bahadurpur is available for cultivation. The morphology and architectural design of houses show urban resemblance. Some of the colonies are well planned with good sewerage facilities. In north, conversion of land use towards rural edge gets linear pattern along Sikandarpur and Bansdih road in villages Devkali, Patkauli, Jirabasti, Parikhara, Tikhampur and gothahuli where urban influence minimizes with increasing distance. In east, rural landscape is transforming

rapidly on both side of Garwar road. A number of shopping *Katras* and the Chandra Shekhar Nagar — a well planned residential colony and semi-planned Nirala Nagar and Jeps Nagar residential colonies have developed in Parmandapur and Baheri villages on the cost of natural vegetation, water bodies and agricultural land. Chandra Shekhar Nagar colony is the most well-planned high class residential colony in and around the Ballia city. Segregated residential areas on religious lines have also developed in Baheri village, where Umarganj and area around private taxi stand (west of Kathar Nala) are the most densely populated and congested area of peri-urban zone. In south-west, growth of houses and commercial establishment is growing incessantly from Kathar Nala to Maldepur village (approximately 2 km). NH-19 where apart from two petrol pumps, and one cinema hall, most of the shops are of motor repairing and show rooms. Private taxi and bus stand have also developed here such growth has had great impact not only on land use/land cover but also on socio-economic condition and way of living of residents of Baheri, Jalalpur, haibatpur and maldepur villages. People are also constructing houses in flood free tract of the Ganga River which might be hazardous in future because of shifting nature of River Ganga.



such constructional activities are going on rapidly in and near Dadri Mela area resulting in shrinking of total area for fair due to which in near future, the place of Dadri Mela may be shifted to south of the Nala . If it happens, it will affect agriculturally fertile land in destination place and at the same time, will give impetus to construction works, cutting down of gardens and natural vegetations which may influence livelihood and economic condition of several families residing around the present location of Dadri Mela. Development of non-agricultural land uses is happening in hazardous and unplanned way barring few constructions. Such process not only engulfing fertile productive agricultural land but also generating a number of vacant land plots. Thus, for economic reasons, most of the plots are neither used for residential nor for any other

purposes and remains vacant and unused. Due to the unbalanced and haphazard growth, water supply to agricultural fields amidst such growth also obstructs consequently agricultural land remains uncultivated and thus unused and vacant. Though in some areas, such land is used as playground and for social assemblies and ceremonies.

Apart from generating huge amount of vacant land, hotchpotch developments either deviate or obstruct natural drainage and sewerage facilities of the city. In future, peri-urban area will be included in city area because at present approximately 14 percent area of the city (vacant land 6.8 percent and 6.9 percent agricultural land) is available for further urbanisation. It will have a great impact on structural configuration and morphology of planned city Ballia as most part of it is growing uncontrolled and unplanned due to which slums and blights are springing up here and there that will create several socio-economic problems not only to the city but will also pose great problems to planning process and its implementation. Thus, peri-urban area will have great significance in planning process and a major focus area in master plan of the city which has not yet been prepared.

Agriculture and livelihood

In peri-urban area, there is no substantial change in agricultural landscape. It follows typical cropping pattern of eastern Uttar Pradesh. The monsoon season crops are millets, i.e., Bajra, Corn, rice, and, Arhar while the winter crops are wheat, and mustard, gram, and lintel. Agricultural landscape in the study area displays three different patterns in east, south, and north-west, which is an outcome of interplay between different soils, relief, mode of irrigation, and construction activities. The eastern part of the study area is a low lying flood free area particularly in south of Ballia-Baria road which was frequently flooded by River Ganga before changing its course a few years ago. That's why, here, soil is clayey loamy which is highly fertile but due to lack of well developed irrigation facilities, all crops depend on mercy of rainfall. Major crops grown here are Bajra, Corn, Arhar, Mustard, and Wheat. But In village Imritpali and Raghunathpur, cultivation of market based agricultural produces, i.e., vegetables, and rice has changed agricultural landscape. In south, the area runs along River Ganga and is consist of high fertile clay mixed loamy soil. But due to the frequent floods, monsoon crops are not cultivated fully; only winter crops viz., Wheat, Gram, and Mustard are grown. Vegetables like *parval*, watermelon and cucumber (*jaid* crops) are extensively cultivated in sandy soil adjacent to confluence of River Tons and River Ganga which not only fulfils the demand in Ballia city but in other towns too. Irrigation is dependent on few diesel pump sets scattered here and there. Due to historical and famous Dadri Mela, approximately 100 acre agricultural fields goes uncultivated in monsoon seasons because it held in late October and *kharif* crops has to harvest before ripening

of crops to make way for Dadri Mela. Whereas it get too late for rabi crops which ultimately affect overall production of *rabi* crops. In North-west, Bore wells are the main source of irrigation water, and but due to frequent power cut, use of diesel to run pump sets is increasing gradually which is a major source of pollution. All crops and vegetables of different seasons are cultivated intensively. It fulfils vegetable demand of Ballia to great extent. In Jamuwa and Pipra villages, no substantial changes in crop type has occurred but interruption in irrigation aroused out of walled open and built plots has been changing mode of irrigation, consequently decrease in production.

Some of the small farmers have even left cultivation and adopted relatively better lucrative works in the city as substitute. They have either sold their land or have given on rent (*batai*) to other for farming.

Socio-economic Structure

Economic dependency on the city has been increasing. Males and females have started working in the city. Dairy and cultivation of vegetables and fruits is increasing rapidly. People are availing their houses/Katras on rent. Farmers sell agricultural land to get money which is invested in business, and construction of building to be rented. It is also spent on marriages, education and for livelihood.

At one hand, where economic condition have improved but on other hand, social aspects have been losing its fabric. Families are settling down at much distance from one another due to economic reasons. Loneliness and crime is on the rise. Interest of Higher and technical education among boys and girls has enhanced due to better private and government colleges in the city.

Major Issues to Direct Peri-urban Landscape Development

- Nature and rates of land cover/ land use change,
- Shortage of agricultural labourers,
- Problems of water-logging, sewerage, and solid waste management,
- Environmental degradation,
- Lack of funds for proper management,
- Lack of guidance and planning,
- Increase in disputes and crime,
- Encroachment and slum development.

Conclusion

- Ballia is very rapidly growing city with a small area which has not been extended since many decades. Hence, its' peri-urban area is changing fast to acquire urban character.

- But, the rate of change is not same everywhere. Area along transportation routes are highly affected through process of urbanisation.
- Highest changes in landscape have been occurred in Baheri, Parmandapur, and Jalalpur in west, Bahadurpur, Parikhara, and Thikhampur in north, and Jamuwa and Pipra in east. In south, flood-free tract of River Ganga have now been extensively cultivated.
- Loss of Agricultural land has affected production. There are no major changes in crop pattern and food crops still dominate the agriculture scene.
- A number of agricultural fields are turning into vacant lands as haphazard and unplanned constructional activities are producing obstructions in water supply for irrigation.
- Peri-urban area is witnessing economic and educational improvements, but Social and environmental degradations in various forms are cause of concern.
- Owing to changing nature of peri-urban landscape around Ballia city, it needs either inclusion in city area or constitution of a peri-urban authority to look after major issues and planning and management processes.

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